CHAPTER-10. MASTER PLAN FOR TANJUNG PRIOK AND BOJONEGARA NEW PORT IN 2025

10-A. DEVELOPMENT CONCEPT OF THE PORTS

257. In order for Tanjung Priok port to function as a principal international gate-way port supporting industrial development especially trading industry in Western Java, as well as for Bojonegara port to function as a complementary port of Tanjung Priok and as basic and strategic infrastructure for regional development of Banten, the study team formulates development concepts and core projects for Tanjung Priok and Bojonegara as shown in Figure 10-A-1.

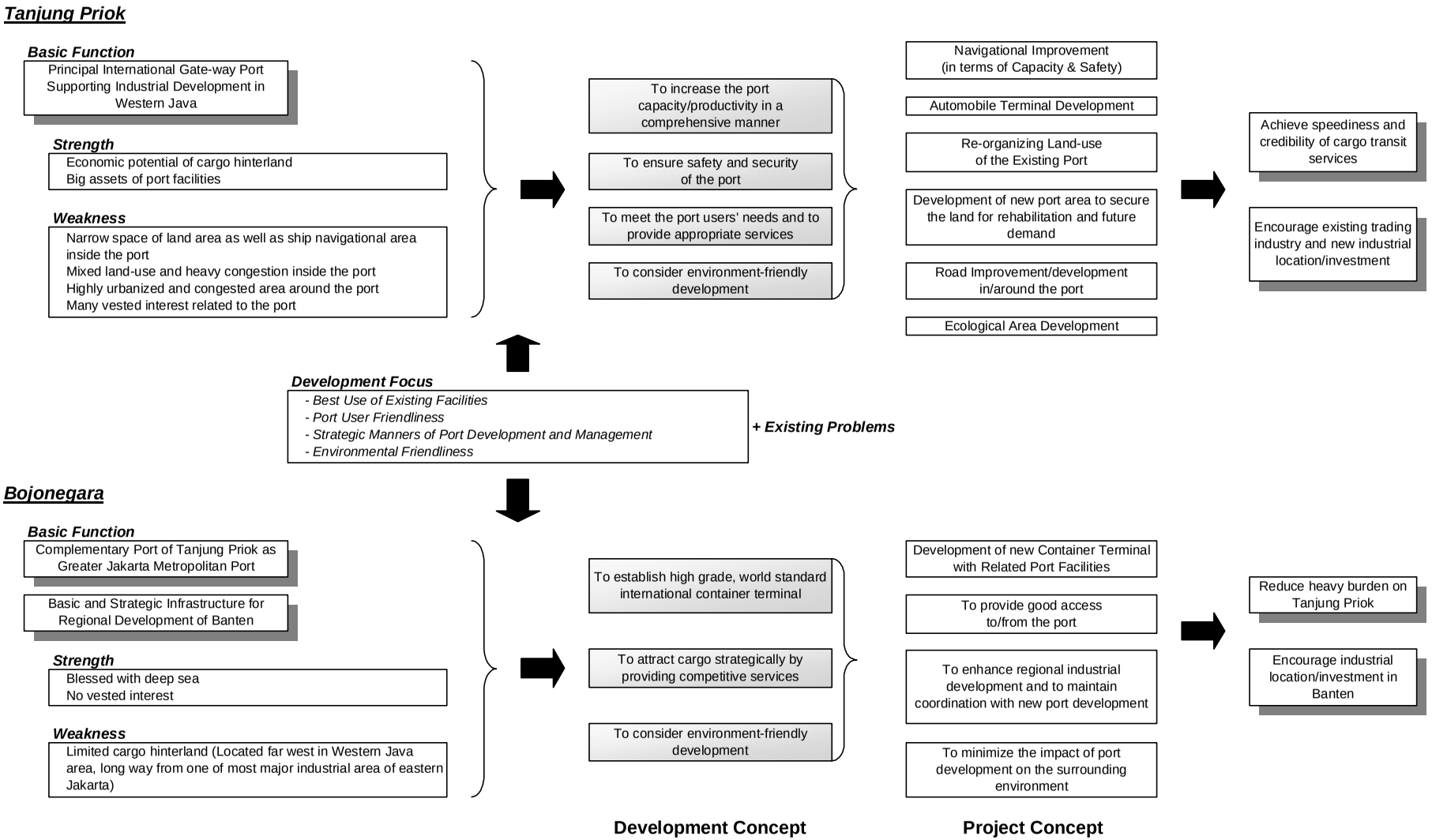


Figure 10-A-1 Development Concept and Core Projects

10-B. PLANNING CONDITION

10-B-1 Cargo Demand

258. Based on the demand analysis for the long term including the above commodity-wise analysis and the functional allotment among the ports in Western Java area, the expected cargo volume of Tanjung Priok and Bojonegara toward 2012 is summarized in Table 10-B-1.

Table 10-B-1 Cargo Tonnage by Package Type

Tanjung Priok

	Container ('000TEU)										
	Total			International					Domestic		
					Laden						
	Total	Laden	Empty	Sub Total	Sub Total	Ex	Im	Empty	Sub Total	Laden	Empty
2012	4,346	3,445	900	3,631	2,983	1,706	1,276	648	715	462	252
2025	5,321	4,487	834	3,776	3,499	1,775	1,724	277	1,545	989	557

	GC ('000 ton)	Bag ('000 ton)	Dry-B ('000ton)			Liquid-B ('000ton)		
			Total	Public	Special	Total	Public	Special
2012	11,971	4,274	11,004	6,563	4,441	2,386	9,258	11,644
2025	15,025	5,365	20,129	10,720	9,409	3,480	10,566	14,046

Bojonegara

	Container ('000TEU)										
	Total			International					Domestic		
					Laden						
	Total	Laden	Empty	Sub Total	Sub Total	Ex	Im	Empty	Sub Total	Laden	Empty
2012	563	456	107	525	431	247	184	94	39	25	14
2025	2,745	2,497	249	2,581	2,392	1,213	1,179	189	164	105	59

	GC ('000 ton)	Bag ('000 ton)	Dry-B ('000ton)			Liquid-B ('000ton)		
			Total	Public	Special	Total	Public	Special
2012	679	74	---	---	---	---	---	---
2025	1,444	157	---	---	---	---	---	---

10-B-2 Target Ship Size

Container Vessels for Ocean Going

259. Distribution of container vessel size in the world is shown in Table 10-B-2. Ships under the class of 50,000GT accounts for almost 90% of the total. This tendency is same when including ordered vessels. On the other hand, the current ship size distribution in Tanjung Priok is shown in Table 10-B-3, all of which are under 50,000GT and less than -13m of draft.

Table 10-B-2 Ship Size Distribution in the World (GT-Draft)

Delivered

Gt	<7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	>15	Total	
0-4999	378	9	2								389	13.8%
5000-9999	117	195	164	5			1				482	30.8%
10000-14999	4	2	123	107	33		2				271	40.4%
15000-19999	1	8	41	201	149	4					404	54.7%
20000-24999			3	31	79	81		1	1		196	61.6%
25000-29999				11	31	130	10				182	68.1%
30000-34999		3		4	28	53	65	1			154	73.5%
35000-39999					20	100	57			1	178	79.8%
40000-44999					5	46	47	11	1		110	83.7%
45000-49999				1		21	49	13			84	86.7%
50000-54999						4	35	114	5		158	92.3%
55000-59999						7	3	5	1		16	92.9%
60000-64999						2	10	10	9		31	93.9%
65000-69999							25	4	73	1	103	97.6%
70000-74999							3		19		22	98.4%
75000-79999								3	10		13	98.8%
80000-84999								2	12		14	99.3%
85000-89999									2		2	99.4%
90000-94999							1		16		17	100.0%
Total	500	217	333	360	345	448	308	164	149	2	2,826	
	17.7%	25.4%	37.2%	49.9%	62.1%	78.0%	88.9%	94.7%	100%	100%		

Source: Fairplay October 2002

Table 10-B-3 Ship Size Distribution at Tanjung Priok (Liner; Mar.01, Sep.02 & Mar.02)

	Draft									
Gt	~6	~7	~8	~9	~10	~11	~12	~13	Total	
0-4999	67	7	3	2	1				80	12.6%
5000-9999	43	43	48	5					139	34.6%
10000-14999	3	13	36	30	7				89	48.7%
15000-19999	2	19	77	151	29	1			279	92.7%
20000-24999					6	1			7	93.8%
25000-29999				1		10	1	1	13	95.9%
30000-34999			1	6					7	97.0%
35000-39999			2	1					3	97.5%
40000-44999				7	2	4	1		14	99.7%
45000-49999					2				2	100.0%
Total	115	82	167	203	47	16	2	1	633	
	18.2%	31.1%	57.5%	89.6%	97.0%	99.5%	99.8%	100.0%		

260. Based on this ship size analysis, the target maximum ship size in the study is set at **50,000GT class**. Dimension of the target ship such as draft, length (LOA) and beam are set as their average plus sample standard deviation for the class of 40,000 ~ 50,000GT as shown below. In terms of draft, according to Table 10-B-2, ships with a draft of less than -13m account for around 90%.

Table 10-B-4 Target Ship Size and Dimension

Target Maximum Ship Size = 50,000GT class (40,000~50,000G			
	Average	Sample Standard Deviation	Setting
Draft (m)	12.1	0.6	12.7
Length (m)	264	15	279
Beam (m)	32.2	0.5	32.7

Source: Fairplay October 2002

Container Vessels for Inter-island (Domestic) Transport

261. Distribution of inter-island container vessel size at Tanjung Priok is shown in Table 10-B-5. Based on the table, the target maximum ship size for domestic container is set as **10,000GT class**.

Table 10-B-5 Ship Size Distribution at Tanjung Priok (Inter-Island; Mar.01, Sep.02 & Mar.02)

Draft of Ship

Gt	~2	~3	~4	~5	~6	~7	~8	Total	
0-4999	9	48	71	132	118	16	2	396	82.7%
5000-9999			1	24	32	14	12	83	100.0%
Total	9	48	72	156	150	30	14	479	
	1.9%	11.9%	26.9%	59.5%	90.8%	97.1%	100.0%		

Length of Ship

Gt	~100	~110	~120	~130	~140	~150	~160	Total	
0-4999	282	78	36					396	82.7%
5000-9999		19	17	11	21	12	3	83	100.0%
Total	282	97	53	11	21	12	3	479	
	58.9%	79.1%	90.2%	92.5%	96.9%	99.4%	100.0%		

262. Dimension of the target ship such as draft, length (LOA) and beam are set as their average plus sample standard deviation for the class of 5,000 ~ 10,000GT as shown below.

Table 10-B-6 Target Ship Size and Dimension

Target Maximum Ship Size = 10,000GT class (5,000~10,000GT

	Average	Sample Standard Deviation	Setting
Draft (m)	7.6	0.8	8.4
Length (m)	132	11	144
Beam (m)	20.8	1.8	22.6

Source: Fairplay October 2002

Pure Car Carrier

263. Distribution of pure car carrier (PCC) vessel size in the world is shown in Table 10-B-7. Ships under the class of 50,000GT account for around 80% of the total. On the other hand, the maximum PCC size recently was 45,000GT with the capacity of 3,500 car units, LOA of 200m, draft of 8.7m and beam of 29m according to Mitsui OSK Lines Indonesia which carried out the first trial of PCC handling in 2002.

Table 10-B-7 Ship Size Distribution in the World (GT-Capacity)

	Capacity (Number of cars)								
Gt	0-999	1000-	2000-	3000-	4000-	5000-	6000-	Total	
0-4999	52	2			1			55	10.1%
5000-9999	52	8						60	21.1%
10000-14999	1	11		1	2	1		16	24.0%
15000-19999	1	15	3	1		1	1	22	28.1%
20000-24999	3	8	18	3		2		34	34.3%
25000-29999			15	27				42	42.0%
30000-34999			2	31	1			34	48.3%
35000-39999			1	15	24	1		41	55.8%
40000-44999				3	49	8		60	66.8%
45000-49999				1	27	45	3	76	80.7%
50000-54999			3		16	24	5	48	89.5%
55000-59999	2			3	1	22	28	56	99.8%
60000-64999							1	1	100.0%
Total	111	44	42	85	121	104	38	545	
	20.4%	28.4%	36.1%	51.7%	73.9%	93.0%	100.0%		

Source: Fairplay October 2002

Table 10-B-8 Ship Draft Distribution

	Draft							
Gt	<7	7-8	8-9	9-10	10-11	11-12	12-13	Total
0-4999	54	1						55
5000-9999	55	4	1					60
10000-14999	8	4	2	2				16
15000-19999	9	9	3	1				22
20000-24999	5	13	12			2	2	34
25000-29999		9	32	1				42
30000-34999		4	26	4				34
35000-39999		2	25	14				41
40000-44999			24	34			2	60
45000-49999			29	41	4	2		76
50000-54999			5	29	7	7		48
55000-59999			1	20	30	5		56
60000-64999				1				1
Total	131	46	160	147	41	16	4	545
	24.0%	32.5%	61.8%	88.8%	96.3%	99.3%	100.0%	

Source: Fairplay October 2002

264. Based on this ship size analysis and considering flexible deployment of PCC in the future, the target maximum ship size in the study is set at **50,000GT class**. Dimension of the target ship such as draft, length (LOA) and beam are set as their average plus sample standard deviation for the class of 40,000 ~ 50,000GT as shown below.

Table 10-B-9 Target Ship Size and Dimension

Target Maximum Ship Size = 50,000GT class (40,000~50,000G			
	Average	Sample Standard Deviation	Setting
Draft (m)	9.1	0.6	9.7
Length (m)	187	7	194
Beam (m)	31.6	1.0	32.6

Source: Fairplay October 2002

Target Maximum Ship Size and Dimensions for Other Type of Vessel

265. Based on the ship size analysis in Tanjung Priok and ship size distribution in the world, the target ship size for conventional cargo at special wharf is set as in Table 10-B-10.

Table 10-B-10 Target Ship Size and Dimension

Type of Vessel	Target Ship Size	Dimension	Average	Sample Standard Deviation	Setting	Remarks
General Cargo	20,000GT	Draft (m)	10.1	0.5	10.6	International GC & Scrap Iron (15,000~19,999G
		Length (m)	173	9	181	
		Beam (m)	24.2	2.1	26.3	
General Cargo	10,000GT	Draft (m)	8.0	0.9	8.9	Domestic GC (5,000~9,999GT)
		Length (m)	126	19	145	
		Beam (m)	19.1	1.4	20.5	
Bulker	40,000GT	Draft (m)	12.9	1.1	14.0	SAR/BOG (30,000~39,999GT)
		Length (m)	213.6	15.8	229.4	
		Beam (m)	32.1	0.4	32.5	
Bulker	25,000GT	Draft (m)	11.0	0.8	11.8	BOG (20,000~24,999GT)
		Length (m)	187	11	197	
		Beam (m)	27.8	2.0	29.8	
Bulker	3,000GT	Draft (m)	5.0	1.3	6.3	For sand etc. (2,000~2,999GT)
		Length (m)	100	12	113	
		Beam (m)	14.1	1.2	15.4	
Bulk Cement Carrier	20,000GT	Draft (m)	10.2	0.2	10.4	For Cement (15,000~19,999GT)
		Length (m)	176	12	188	
		Beam (m)	24.6	1.6	26.2	
Product Tanker	25,000GT	Draft (m)	11.0	0.8	11.8	PMB (20,000~24,999GT)
		Length (m)	182	10	192	
		Beam (m)	29.2	2.1	31.3	
Chemical Tanker	10,000GT	Draft (m)	8.2	0.7	8.9	DKP (5,000~9,999GT)
		Length (m)	126	11	136	
		Beam (m)	19.4	1.4	20.8	
Chemical Tanker	3,000GT	Draft (m)	5.7	0.7	6.4	For CPO (2,000~2,999GT)
		Length (m)	92	6	98	
		Beam (m)	13.9	1.0	14.9	

Source: Fairplay October 2002

Passenger Vessels

266. Considering the current number of unloading/loading passengers and ship size distribution, the target maximum ship size is set as **15,000GRT** with 150m of LOA, -6.5m of draft and 25m of beam. Maximum draft of current vessels is -6.7m.

Table 10-B-11 Target Ship Size and Dimension

Target Maximum Ship Size = 15,000GT class

	Setting
Draft (m)	6.5
Length (m)	150
Beam (m)	25.0

Note) Based on the current maximum ship size.

10-B-3 Planning Standard for Channel and Basin

Width of Channel

267. Based on Japanese and UNCTAD standards, the widths of channel for one-way /two-way traffic are calculated as follows:

Table 10-B-12 Widths of Main Channel

		Concept	Container ship	Car Carrier
Two-way	UNCTAD	8B ~ 10B	264~330m (B=33m)	264~330m (B=33m)
	Japanese	1.5 L (In case that the length of the navigation channel is relatively long, or the target vessels frequently pass in both ways through the channel.)	420m (1.5L)	291m (1.5L)
One-way	UNCTAD	5B	165m	165m
	Japanese	>0.5 L	>140m	>97m

* L : Ship length, B: Width of Beam (Distribution of beam is as follow.)

268. On the other hand, width of channel has been examined applying the international standard stipulated by PIANC and IAPH "*Approach Channel – A Guide for Design*". The details of calculation are described in the Main Report and the results are summarized as below. In this study, the figures below are adopted as planning figures because minimum width should be set in effective and reasonable manner.

		Outer Channel		Inner Channel	
		One-way	Two-way	One-way	Two-way
Tanjung Priok	Existing Port	150m	300m	150m	300m
	Ancol	-	-	120m	250m
Bojonegara		150m	300m	-	-

1) Turning Basin

269. According to UNCTAD and Japanese standard, the diameter of turning basin should be equal to or greater than 2 L (= Ship length) of the largest ship in case of towing by tugboat. For a container ship for ocean going, the diameter of turning basin is calculated as 560m (2 x 280m) based on the target ship size of Table 10-B-4.

2) Calmness of Basin alongside Quays

270. Based on the standard, excessive probability beyond 0.5m wave height in front of quay should be under 2.5% throughout the year.

10-C. PROJECT COMPONENTS (MAJOR PROJECTS)

10-C-1 Navigational Condition Improvement

Concept

Urgent

- ✓ *Widening the main channel (300m width and -14m depth) to secure two-way traffic*

as well as widening the turning basin (maximum 560m diameter) to accommodate larger vessels. (Improvement of navigational condition is crucial to increase the port capacity and enhance safety.)

Long-term

- ✓ *Opening the east gate and channel (with a depth of -14m) to secure smooth vessel traffic*

10-C-2 Automobile Terminal Development

Concept

- ✓ *Establishment of a dedicated automobile terminal with sufficient open yard as soon as possible to meet the rapid increase of export/import car products among ASEAN countries. (Establishment of a dedicated automobile terminal is necessary to meet the urgent needs of car manufacturing industries in AFTA (ASEAN Free Trade Area), which will be sure to enhance the export-oriented activities/investments in Indonesia.)*

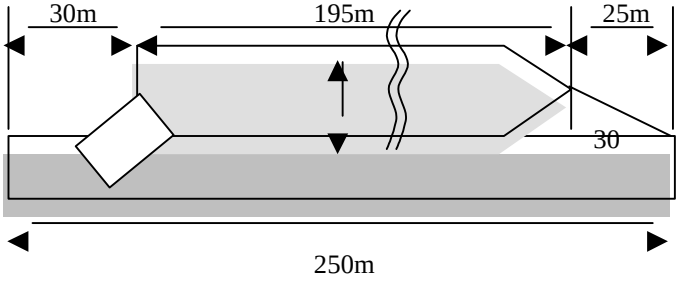
Requirements

271. According to the demand forecast and considering examples of automobile handling in other ports as well as length and draft of the target ship, the dimensions of the automobile terminal are set as follows:

Table 10-C-1 Pure Car Carrier Berth

	Urgent (2006)	2012	2025
Demand	150,000 units/year	210,000 units/year	390,000 units/year
Number of Berths	1	1	2
Length of Berth *	250m	250m	500m
Depth of Berths **	-10m	-10m	-10~11m
Terminal Area	8~9ha	8~9ha	16~18ha

* Length of berth is set as follow:



** Depth of berth is basically calculated as follows:

Draft of ship (D) + Allowance (D*10%) = 9.7m * 1.1 = 10.7m

However, since a ship with the maximum draft is unlikely to call, depth of berth is set as 10m in the initial stage.

272. In addition to hardware requirements, the following points are important and should be taken into consideration for the terminal site selection and for the better management of the terminal:

- ➢ Good environment (No damage to car products)
- ➢ Security (Terminal should be in an isolated area)
- ➢ Speedy customs clearance

- Flexible yard operation (small works on cars inside the yard etc.)

Location of Automobile Terminal

273. In general, an automobile terminal needs a wide storage yard adjacent to a quay. In case of Tanjung Priok, there are few alternatives to secure such a broad space. According to our survey, there are only two sites where space of over 7ha could be secured, DKB-IV area and newly developed east Ancol reclamation area. The study team evaluated these two alternatives from various points and has concluded that DKB-IV area is much better than east Ancol reclamation area putting priority on the time of realization as well as initial development cost. (See Table 10-C-2.)

274. In the long term, there are two options for expanding the terminal with 2 berths in line with the requirement in 2025. One is expanding the terminal next to the established one in DKB-IV area, and the other is relocating the whole terminal to the east Ancol reclamation area in the long run.

Table 10-C-2 Comparison of Alternative Sites for the Automobile Terminal

	Alternative-1 (DKB-IV Site)	Alternative-2 (East-Ancol Reclamation Project Site)
Accessibility	Good (Closer to the location of major car automotive manufacturing factories rather than Ancol area) (See Figure 10-C-2)	Less than Alternative-1
Influence to the Road Traffic	Less influence than Alternative-2	Generate road traffic congestion around the port by car carrier trailer especially inside the port
Environment	Good (Isolated area located in the special cargo zone and less congestion. Need to examine the influence of dock activities)	Good (Isolated area)
Project Cost	Around 120 billion Rp	Around 330 billion Rp: Including channel and breakwater development in Ancol
Time of realization	Expected to be realized around 2006. (1~2 years for construction)	Expected to be realized around 2008. (3~4 years including breakwater, channel and basin, access road.) Cannot meet the urgent need of automobile export/import
Maintenance	Easy (Additional annual maintenance dredging volume is estimated at most 80,000m3)	Burden of channel maintenance cost for the channel due to considerable sedimentation volume (Annual maintenance dredging volume is estimated more than 300,000m3)
Financial Situation of IPC-II	(Cash ending for the project) ≻ (more plus by amount of around 70 billion Rp in 2015, and 150 billion Rp in 2020)	
Debt Service Coverage Ratio (Project itself)	Over 1.0	Less than 1.0 (Incapable of repayment with project itself)
Coordination with the existing use and plan	Need to coordinate with DKB, however, the required area can be located in their non-active/vacant space without any interference in their current business.	Need to coordinate with the private investor of Ancol reclamation project and need to modify the plan.
Environmental Impact	Nothing Serious	Some environmental impact will be expected due to the reclamation
Others	It can be converted to another terminal when needed	
Evaluation	Good	Not good in initial stage

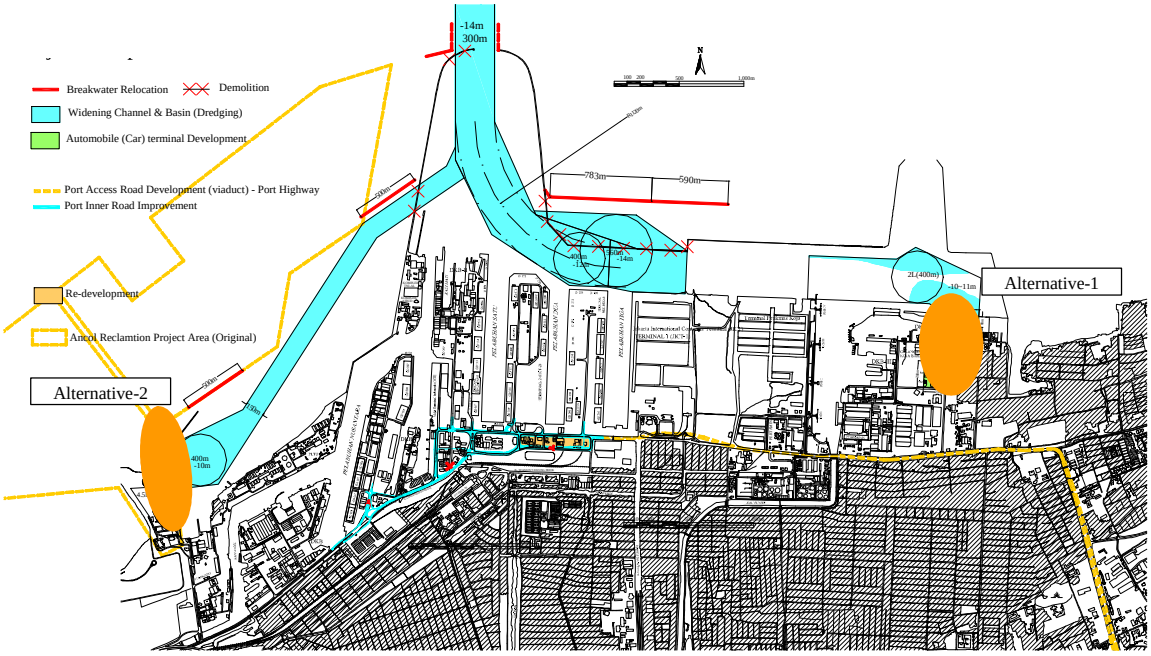


Figure 10-C-1 Alternative Locations for an Automobile Terminal

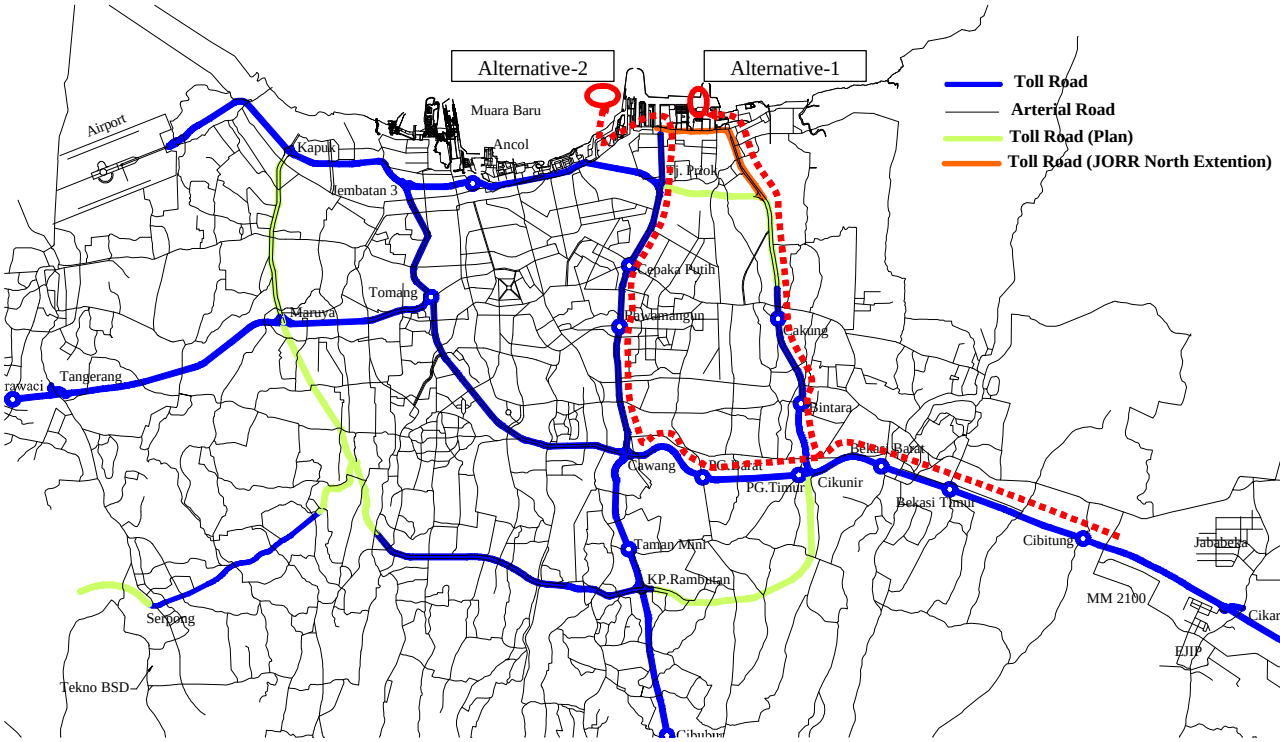


Figure 10-C-2 Expected access routes from automotive manufacturing factories to the port

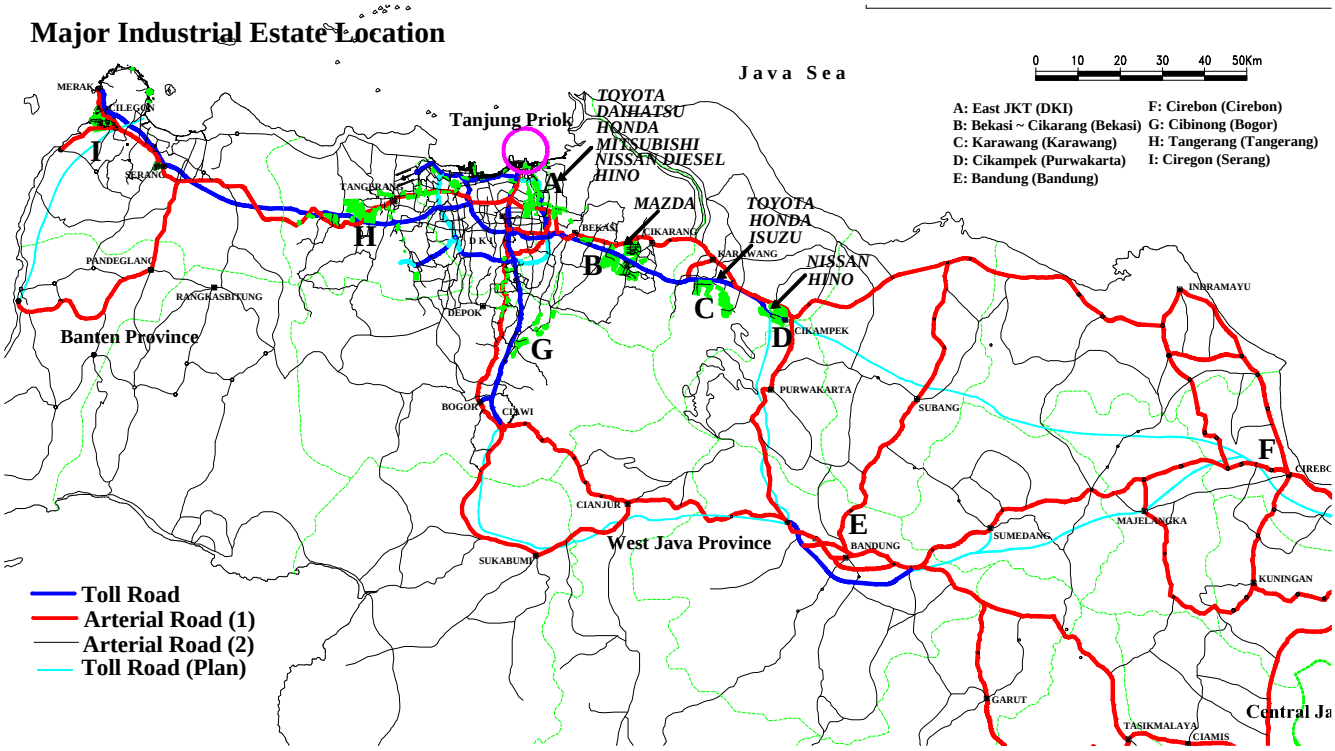


Figure 10-C-3Location of Major Automotive Manufacturing Companies

10-C-3 Re-organizing Land-use of the Existing Port

275. To cope with the future increase of cargo accompanied by the economic development in Indonesia, as well as to alleviate the land traffic convergence/concentration at certain points, re-organizing/re-developing mixed-use of the existing land-use of the port is also essential. Here, the Study team groups conceivable projects into the following contents:

1) Streamlined Cargo Handling Zone

276. Cargo handling zone should be streamlined, which includes: Consolidation of scattered inter-island container handling into a dedicated container terminal, Consolidation of bulk cargo handling, Pertamina berths relocation, Consolidation of international container terminal.

Inter-island Container Handling

Concept

- ✓ *Expansion of MTI and establishment of an additional dedicated inter-island container terminal consolidating scattered inter-island container handing area*

277. To cope with the expected rapid increase of inter-island containers and to handle them effectively and efficiently, the current handling system in which containers are scattered across several wharves needs to be improved. The Study team proposes that the following countermeasure should be implemented:

- ➢ Expansion of MTI together with widening of the access channel
- ➢ Development of an additional dedicated inter-island container terminal consolidating the scattered inter-island container handing area

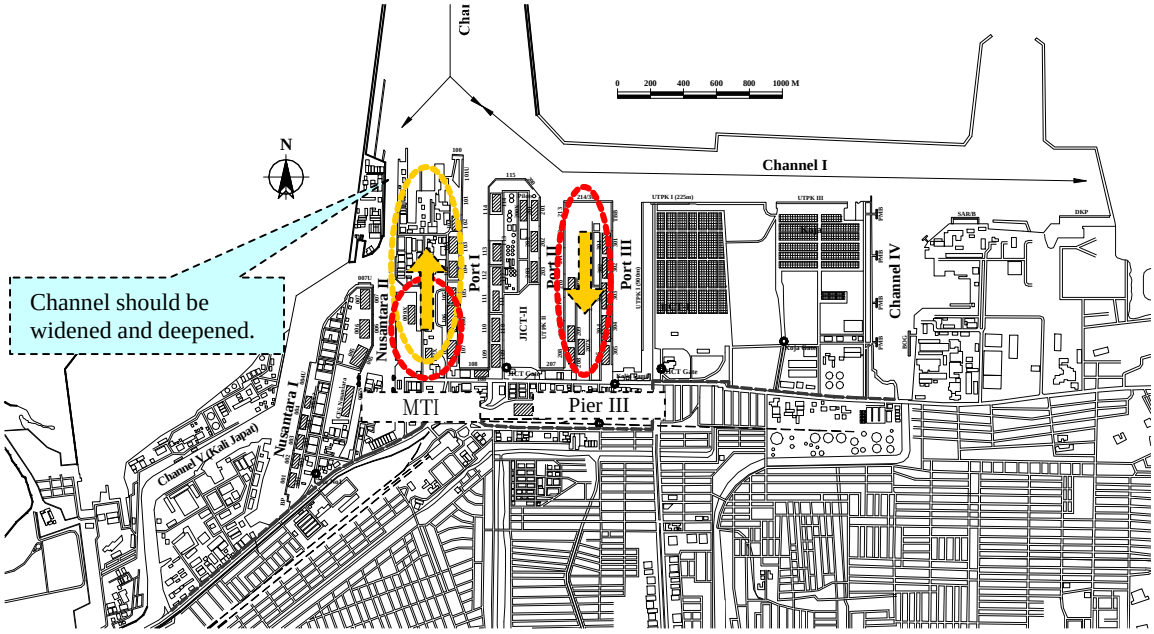


Figure 10-C-4 Inter-island Container Handling Zone

Bulk Cargo Handling

Concept

- ✓ *Consolidation of scattered bulk cargo handing area by commodity*

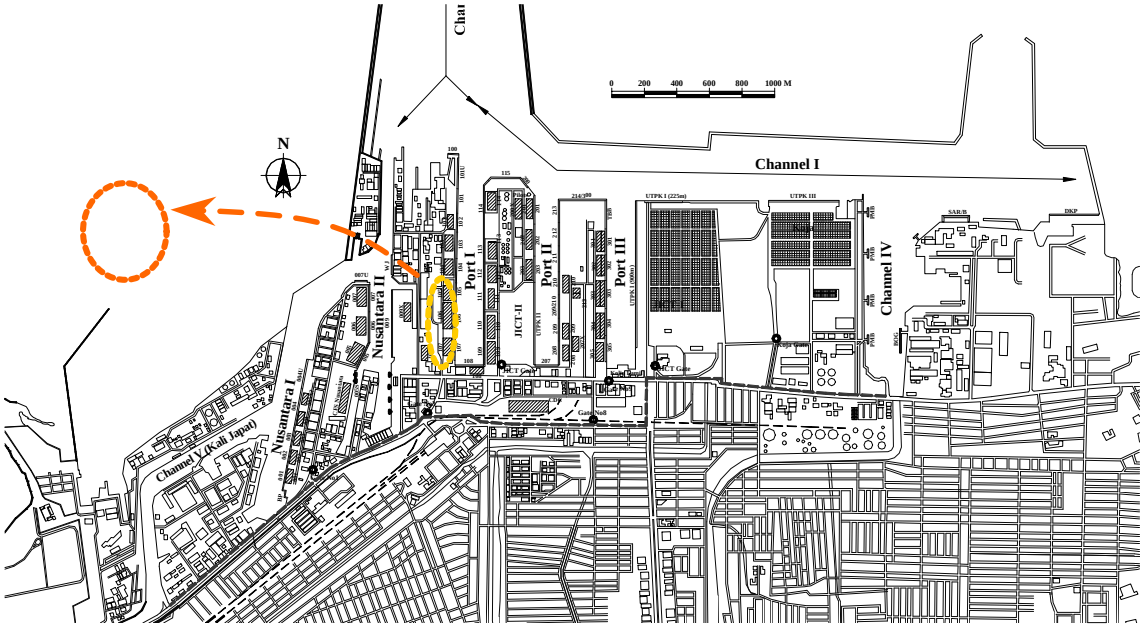
278. Major bulk cargoes handled at public wharves are CPO (Crude Palm Oil), sand, bulk cement & clinker, scrap iron. Unloaded/loaded volume of these major commodities makes up more than 90% of the total bulk cargo handled at public wharves. Methods to consolidate these cargoes are described in the Main Report III.

Passenger Terminal Relocation

Concept

- ✓ *Relocation of existing passenger terminal to the new development area where the terminal can be separated from cargo handling zone*

279. For safety, security and amenity of passenger terminal, it is desirable that the passenger zone is located apart from the cargo handling area. Currently, passenger terminal is located at berth 106. Passenger vessels often use berth 107 in addition to 106 to accommodate berthing two vessels at one time. The location of passenger terminal generates frequent congestion mixed with passenger traffic and cargo traffic at the foot of Pier-I. The Study team recommends that the existing terminal should be relocated to another new place. East Ancol area, which will be developed into a new port area in future, would be a good site for the new passenger terminal. The area left vacant at 106 and 107 berth after relocating the passenger terminal can be used as general cargo handling berth.



Pertamina Relocation and International Container Terminal Consolidation

280. For the long term plan, the Study team proposes that Pertamina berths should be relocated to the offshore area in front of the new relocated breakwater. In fact, Channel IV, in front of the existing Pertamina berths, now has a sedimentation problem due to the drainage materials from the city, and the channel itself is relatively narrow and thus unsafe for vessels carrying dangerous cargo.

281. On the other hand, JICT2 container terminal is now operated separately from JICT1, which is not an efficient way of operation. Integration of JICT1 and JICT2, preferably including Koja terminal, would result in a more efficient terminal. It would also improve the traffic flow around the terminal. The Study team proposes that a new container berth with an apron of 100m in width and 500m in length be developed after the relocation of Pertamina berths. The expected vacant area at JICT2 will be used as an inter-island container terminal.

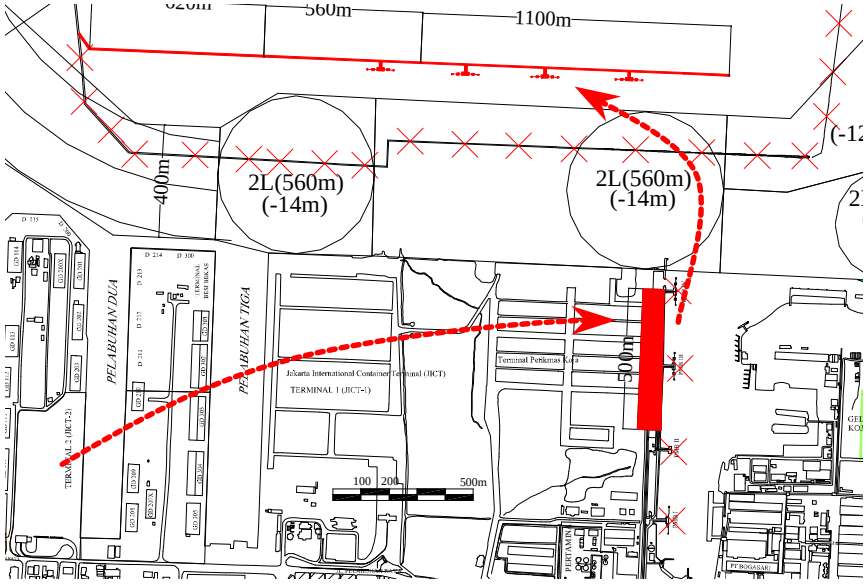


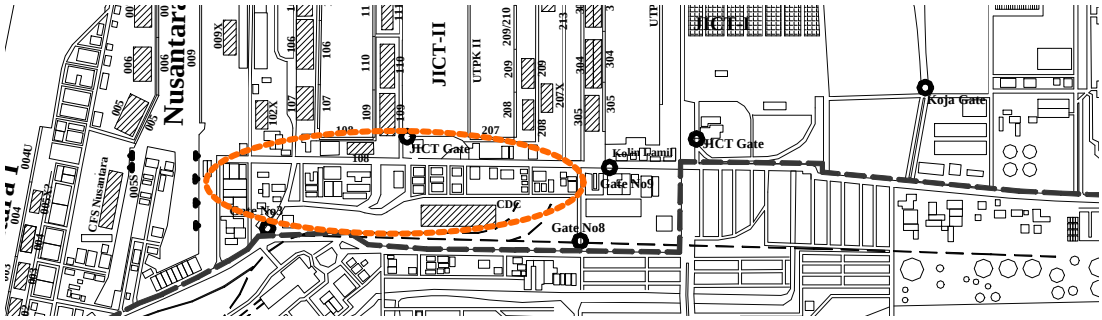
Figure 10-C-5 Pertamina Relocation and International Container Terminal Consolidation

2) Providing Suitable and Sufficient Land Space for Better Management of the Port

282. Proper land-use system with suitable and sufficient land space is indispensable to effectively manage a port. In this regard, relocation of the existing passenger terminal to avoid congestion with cargo handling, yard development, reclamation of a part of basin, etc. are necessary.

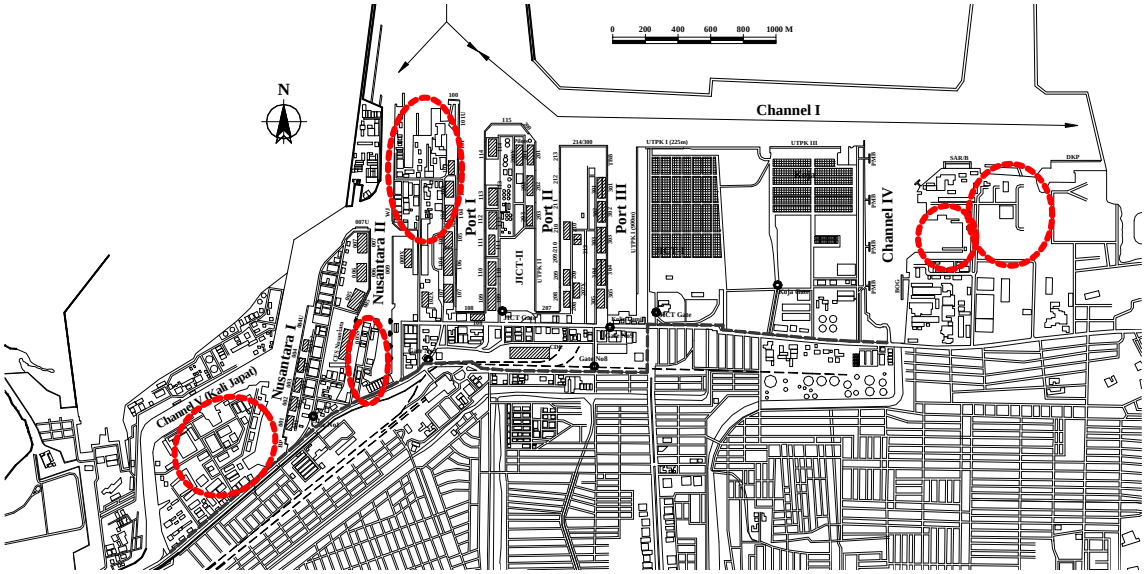
In-land Yard Development

283. Yard space will be short in future, especially for container as examined earlier. To provide enough yard space, the Study team proposes that a part of the central office zone located at the foot of Pier-I~III be converted to in-land yard space together with the improvement of the inner port road.



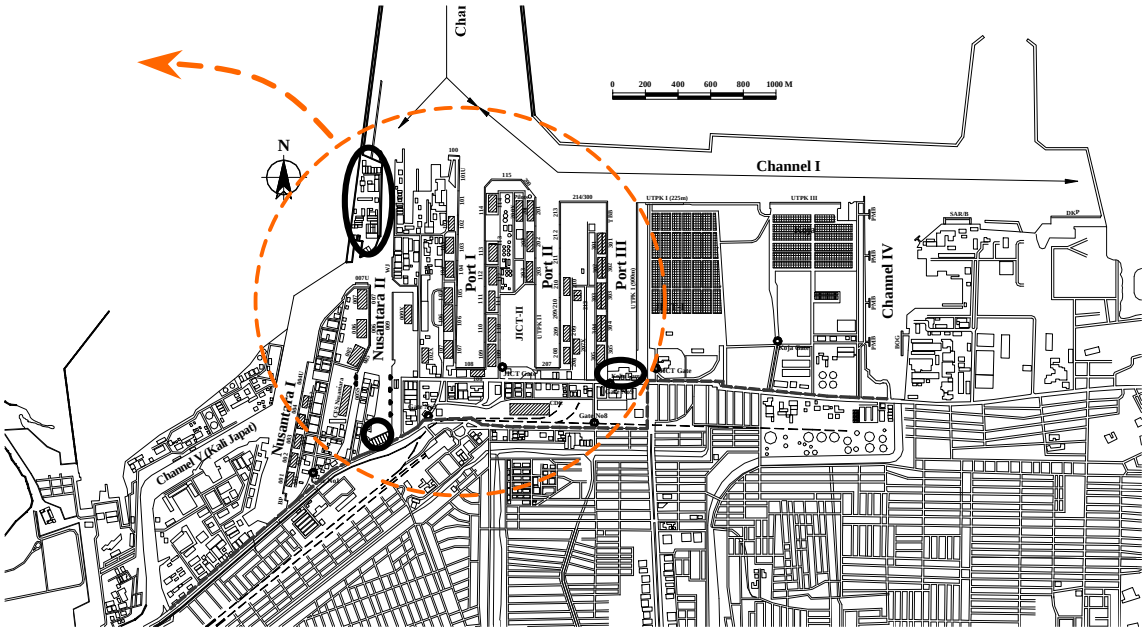
Consolidation of Ship Building/Repairing Yards

284. Ship building/repairing yards are scattered in the port at the moment; in particular, there are a lot of small yards in the area of Nusantara and Kali Japat. Some of which are not well active. They should be consolidated step by step to enhance the competitiveness of the ship building industry. The Study team proposes that a new area for consolidating and relocating these activities be prepared. The vacant area after relocation can be used as a port function area such as MTI expansion, automobile terminal expansion, dry bulk terminal, port business area etc. by reclamation when needed.



Relocation of Military Base

285. At this moment, there are 3 areas used by the military. To prevent interference with commercial port operations, they should be located at a separate port or area. Particularly, the military base located at the entrance of Nusantara basin is an obstacle to widen the channel accommodating larger vessels, which is one of the reasons the productivity of MTI is still at a low level. The Study team recommends that they should be moved and consolidated to another port such as Marunda, or at least, consolidated and located at non-congested area outside the existing port.



Providing Additional Land with Reclamation

286. To provide additional land space for re-development of the ports, the following reclamation project will be possible inside the existing port. In order to reclaim the water area, it is necessary to discontinue and/or relocate the current activities at the waterfront. The vacated area should be kept under the control of IPC-II and not be used for nearsighted needs.

Area	Function
Nusantara-II basin	Port business area including port administration function
Nusantara-I basin	Dry bulk handling area such as CPO, sand
Behind 101U	Yard for dry bulk such as scrap iron, clinker etc.
Bogasari Area	Special dry bulk such as grain, fertilizer etc.

3) Land-use re-development with joint-implementation between ports side and urban side

287. The Study team considers that there is a need for re-development of the urban area near the port. Because city activities around the port are closely related to the port activities in terms of traffic and land-use. Congestion in/around the port is the responsibility of both of the city and port, and re-development work should be carried out jointly. Re-development of urbanized areas especially around Tanjung Priok railway station and city road improvement are two areas where both sides need to work together.

288. The Study team strongly recommends an additional study be carried out for better planning of Tanjung Priok port. Plans focusing on the bus terminal together with the railway station will be examined in Figure 10-C-6.

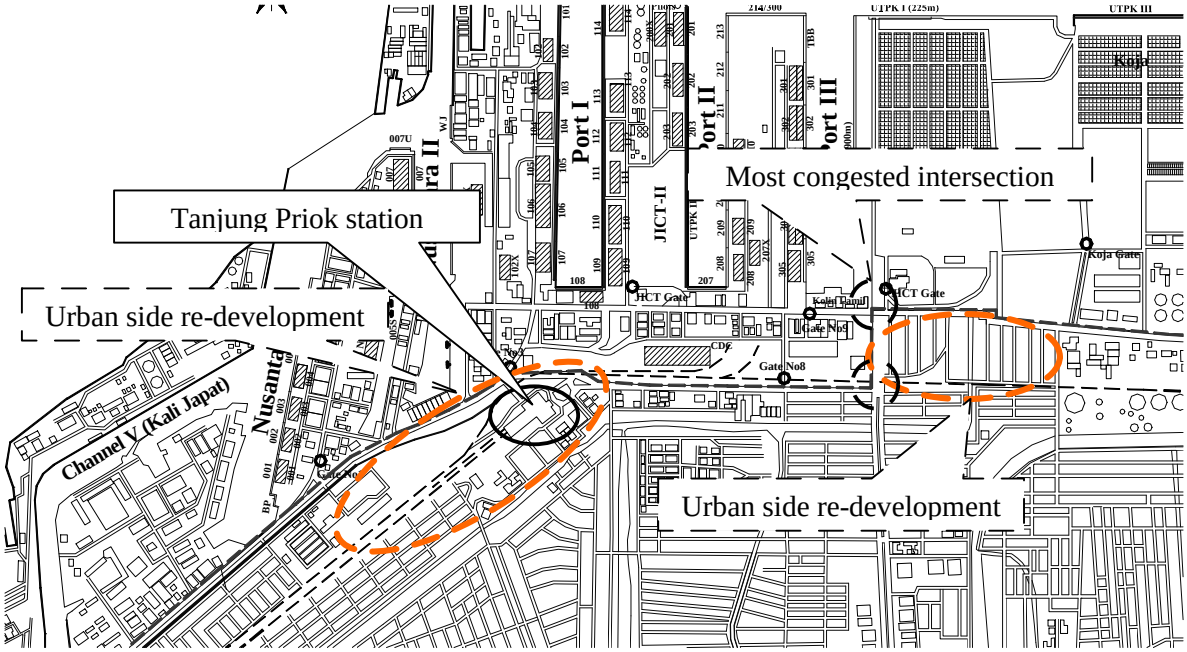


Figure 10-C-6 Land-use Re-Development

10-C-4 New Port Area Development

Concept

- ✓ *Development of new port area outside of the port by reclamation in order to re-develop the existing port as well as to accommodate the future increase in cargoes*

289. In order to re-organize existing land-use of the port as well as to cope with the future cargo demand, new port area should be developed. The Study team examined the following candidate sites for new port development and proposes that Alternative-A (East-Ancol offshore area) be given first priority for the new port area. Alternative-C (Kalibaru offshore area) is considered as a second priority to be developed in the long term.

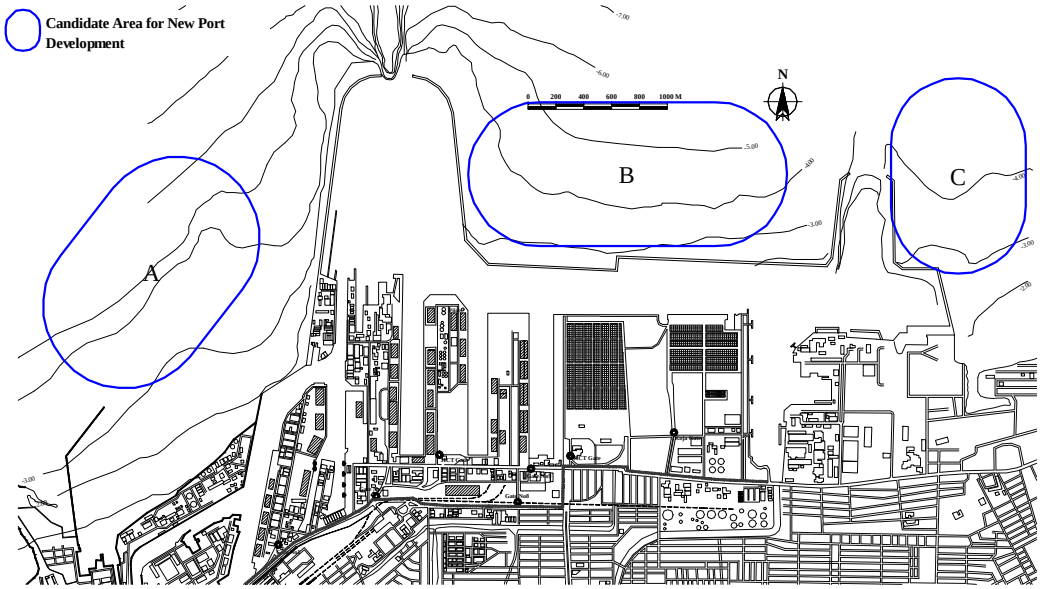


Figure 10-C-7 Candidate Sites for New Port Development Area

Table 10-C-3 Evaluation of Candidate Sites for New Port Development

	Alternative-A	Alternative-B	Alternative-C
Location	East-Ancol offshore	Central Offshore	Kalibaru Offshore
Land Accessibility	Fairly easy to secure access road from the west side of the port.	Difficult to secure access road. (A large-scale bridge over the main channel is required.)	Not easy to secure access (Necessary to go through densely populated area.)
Ship Side Accessibility	Fairly easy to secure the access (Near to the existing main channel. Access channel is needed from the existing main channel.)	Easy to secure the access (Facing the existing main channel. No need for additional channel.)	Not easy to secure the access (Dredging of a long channel is required.)
Project Cost	Fairly High	Extremely High	High
Construction Period	Rather shorter than other alternatives because a reclamation plan already exists and some part of reclamation work has been started by a private company.	Seems to be long	Seems to be long (Settlement of residential area is required.)
Evaluation	First Priority	Last Priority	Second Priority

East-Ancol Development

Concept

- ✓ *Development of new port area in East-Ancol to relocate the passenger terminal from existing place and to develop multi purpose terminal*

Shape of Reclamation

290. The shape of new reclamation in East-Ancol area and development area for port facilities basically follows the current reclamation plan agreed between IPC-II and a private sector shown in Figure 10-C-8.

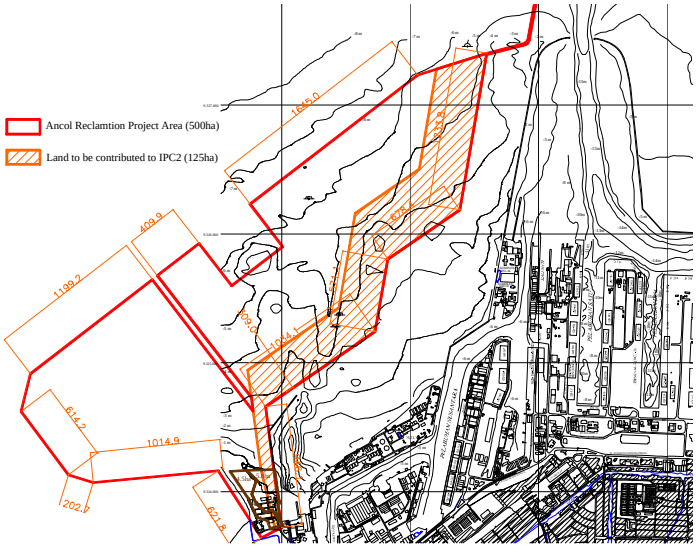


Figure 10-C-8 Current East-Ancol Development Plan

291. However, it has been slightly modified to ensure that the water area will not be closed due to the reclamation. The water area between the two reclamation sides has been increased to ensure that there is a sufficient water flow, which would reduce environmental impact of the reclamation. (See Figure 10-C-9)

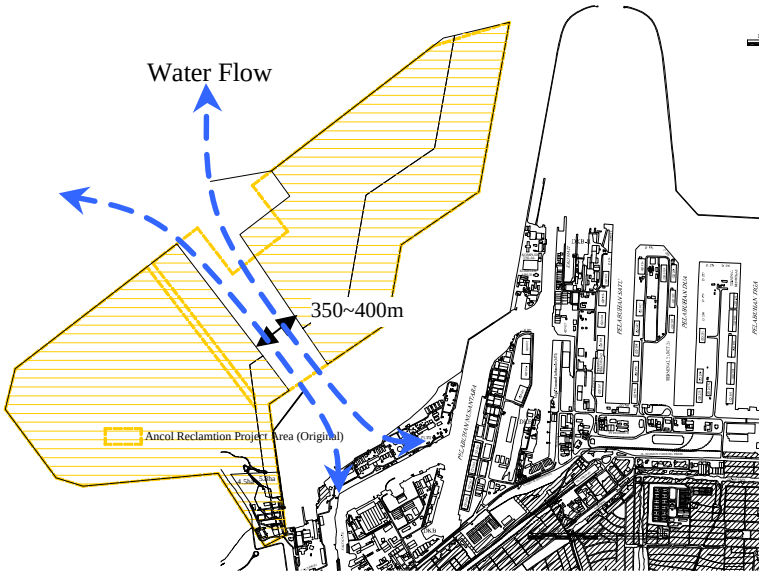


Figure 10-C-9 Modification of the Current Reclamation Plan

Kalibaru Offshore Development

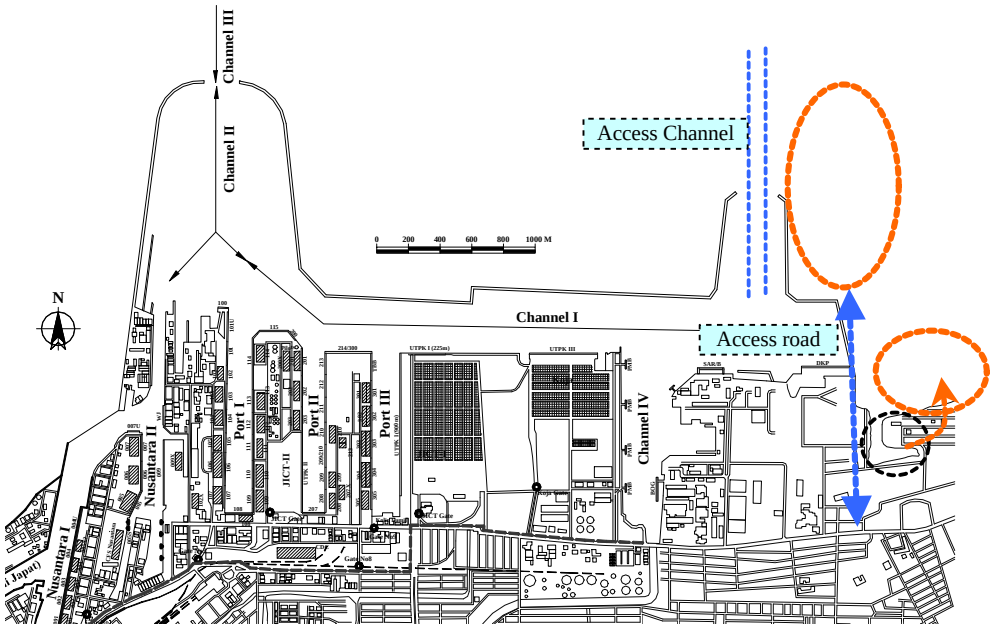
Concept

- ✓ *Development of new port area in Kalibaru offshore area to relocate ship building/repairing facilities and to accommodate future demand of special bulk cargo*
- ✓ *Modernization of the existing Kalibaru port*

292. In order to consolidate the existing ship building/repairing facilities as well as to accommodate future demand of special bulk cargo such as grain, fertilizer etc., another new

broad reclamation area should be developed. However, these seem to be rather long-term needs, and Kalibaru offshore area is considered suitable for this development in the long term as described earlier. When the existing ship building/repairing facilities can be consolidated to this area, the port activities would greatly benefit.

293. For the development of Kalibaru offshore area, an access channel is required. The study team proposes that the east channel should be opened as one-way channel with a depth of -14m. An access road, which will have some impact on existing Kalibaru port as well as the residential area, is also required. The study team proposes that another new port adjacent to the existing port with some area for residential use to mitigate the impact of port activities.



10-C-5 Port Access Improvement

294. To alleviate the road traffic congestion in/around the port, the improvement of the main road network in the port, with proper traffic management and with good linkage between the port and urban area, is vital. The main road from Gate-1 to Gate-9 should be re-organized to secure a circulating loop road with 4~6 lanes considering smooth inflow/outflow traffic of the piers/wharves.

295. In addition, to avoid mixing port related traffic with through traffic, especially through traffic in front of JICT gate, the development of an east-west highway connecting the port (Gate-9 & JICT-Koja Gate) with the JORR northern extension toll road is crucial.

296. Other possible countermeasures to improve the traffic situation around the port are an access road to/from JIUT, and the improvement of the major urban roads such as Jalan Martadinata, Jalan Enggano and Jalan Jampea. The Study team also points out that re-development of the highly congested area around the railway station is indispensable to improve the traffic situation in/around the port. The details road improvement projects/programs are described in Chapter-11.

297. As for railway access, it is very difficult for the existing line to be extended to the container terminal nor new line to be developed, because roads and railway should not be crossed each other at grade especially in busy traffic area such around Tanjung Priok port.

Furthermore, the existing railway network of Jakarta Metropolitan area is not well maintained and would be unsuitable to introduce freight train especially in the daytime. However, it is worth for IPC2 working with PT. KAI to enhance railway transport between the existing Pasoso terminal and the inland container depot by improving its service level of frequency and/or capacity centering on the nighttime.

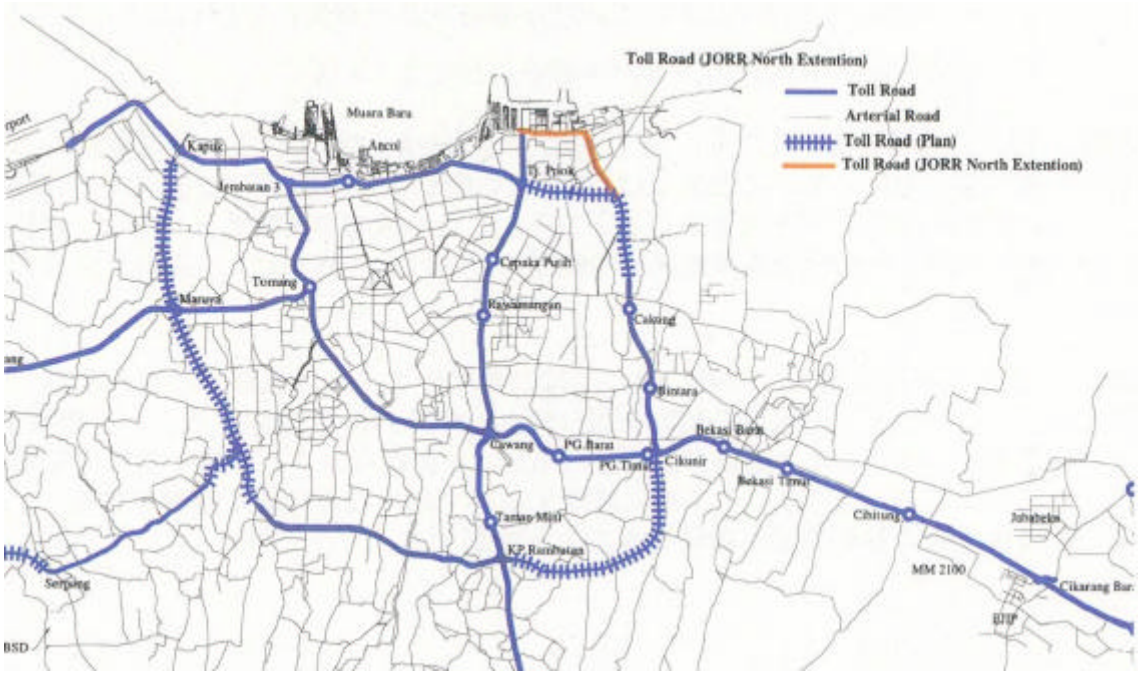
10-C-6 Environmental Improvement

298. IPC2 acknowledges that there is serious water and sediment pollution within the breakwater, and this is mainly due to drainage and garbage from DKI Jakarta. In addition, floating garbage in the canals causes flood problems.

299. Hence, improvement for water and sediment quality is necessary for sustainable development of Tanjung Priok. Some examples of improvement are as follows:

- Improvement of breakwater alignment to make it easy for water to circulate
- Development of ecological waterfront with mangrove planting
- Improvement of waste and garbage management

300. For workers and passengers in the port as well as visitors to the port, amenity such as green park, an observation tower etc. should be provided in such appropriate place as the port business zone at Nusantara area and/or the passenger zone at East-Ancol area. (At present, sufficient amenities are not provided for passengers and workers in the port.)



10-C-7 Summary of Project Components

301. Long-term project components are summarized in Table 10-C-4 including road components.

Table 10-C-4 Long-term Project Components for Tanjung Priok

Project	Contents
Navigational condition improvement (capacity and safety)	- Widening main channel & turning basin - Widening the channel & basin to the Nusantara area including MTI - Opening the east channel
Automobile terminal development	
Re-organizing land-use of the existing port	
Streamlined cargo handling zone	- Inter-island container handling (Pier III reorganization and MTI expansion) - Bulk cargo handling (CPO, sand, cement etc.) - Passenger terminal relocation - Pertamina berths relocation together with consolidation of international container terminal
Providing suitable and sufficient space for the better port management	- In-land yard development - Providing new space by reclamation - Relocation of military base - Consolidation of ship building yard
Land-use re-development in the urban area adjacent to the port	- Re-development around the Tanjung Priok railway station - Re-development of the residential area on the south of JICT container terminal
Ancol Development	- New Passenger Terminal - Multi Purpose Terminal - Access road
Kalibaru Off-shore Development	- Consolidation of ship building yard - Development of special cargo handling zone - Access road - Development of Kalibaru new port
Environmental Improvement	- Re-alignment of breakwater - Ecological waterfront development with mangrove planting
Road development/improvement in/around the existing port	- Inner Road Improvement - Eastern Port Access Highway to link with JORR - Improvement of the existing urban road including western port access road and access road to/from JIUT