15. SERPONG LINE DOUBLE TRACKING, ACCESS IMPROVEMENT AND INTEGRATED LAND DEVELOPMENT

15.1 Background

Large-scale housing complexes have been developed along the Serpong Railway Line. The residents in these residential areas belong to middle and high-income households, thus most of them commute to CBD in Jakarta by private passenger cars. However, the capacity of the road network to Jakarta CBD is not sufficient and is very congested every morning; consequently it often takes two hours from their home to work places. Recently PT. KA has started executive train services from Serpong and Sudimara to Sudirman and the trains have attracted many people in the area. Thus, it showed potential passenger demand if sufficient railway service was provided.

The transportation master plan proposed in SITRAMP revealed that enhancement of public transportation is a key to the successful establishment of an effective and efficient transportation system. In particular, improvement of the Bekasi Line and Serpong Line has been given priority and it is proposed to provide east west direct operation in the short term.

This pre-feasibility study examines technical issues, economic and financial viability and implementation mechanism of the project for the Serpong line double tracking, access improvement and integrated land development.

15.2 Passenger Demand Forecast

Projected passenger demand along Serpong line is shown in Figure 15.1. Although a direct railway line is provided to connect Serpong in the west and Cikarang in the east, majority of the railway passenger movements is still expected to be of a commuting nature, clustering in the Serpong-CBD and Bekasi-CBD trips. The section between Sudirman and Manggarai stations (being in the center of Jakarta's CBD) is predicted to become the busiest section serving for more than 300,000 passenger trips in the year 2020.

The estimated number of boarding and alighting passengers on the railway stations along Serpong line is presented in Table 15.1 for the years 2010 and 2020. In the western side, the Rawabuntu station is expected to emerge as a major station, in line with the development of Bumi Serpong Damai town. On the other end, the Sudirman (formerly Dukuh) station will become the busiest station serving for more than 100,000 boarding and alighting passengers daily.

Table 15.1 Estimated Number of Boarding and Alighting Passengers, 2010 and 2020

(Unit: Pax/day)

No.	Station Name	Total Daily Pax (On+Off)	
		2010	2020
1	Serpong	21,691	30,970
2	Rawa Buntu	49,580	70,788
3	Ciater	6,197	8,848
4	Sudimara	30,394	40,734
5	Jurang Mangu	32,490	43,543
6	Pondok Ranji	15,721	21,069
7	Bintaro	12,577	16,855
8	Pondok Betung	13,625	18,260
9	Kebayoran	44,466	55,887
10	Limo	20,454	25,708
11	Palmerah	24,012	30,179
12	Tanah Abang	33,498	42,243
13	Karet	15,764	19,879
14	Dukuh (Sudirman)	98,525	124,244
15	Rasuna	49,262	62,122
16	Mampang	4,059	5,001

Source: SITRAMP Estimate

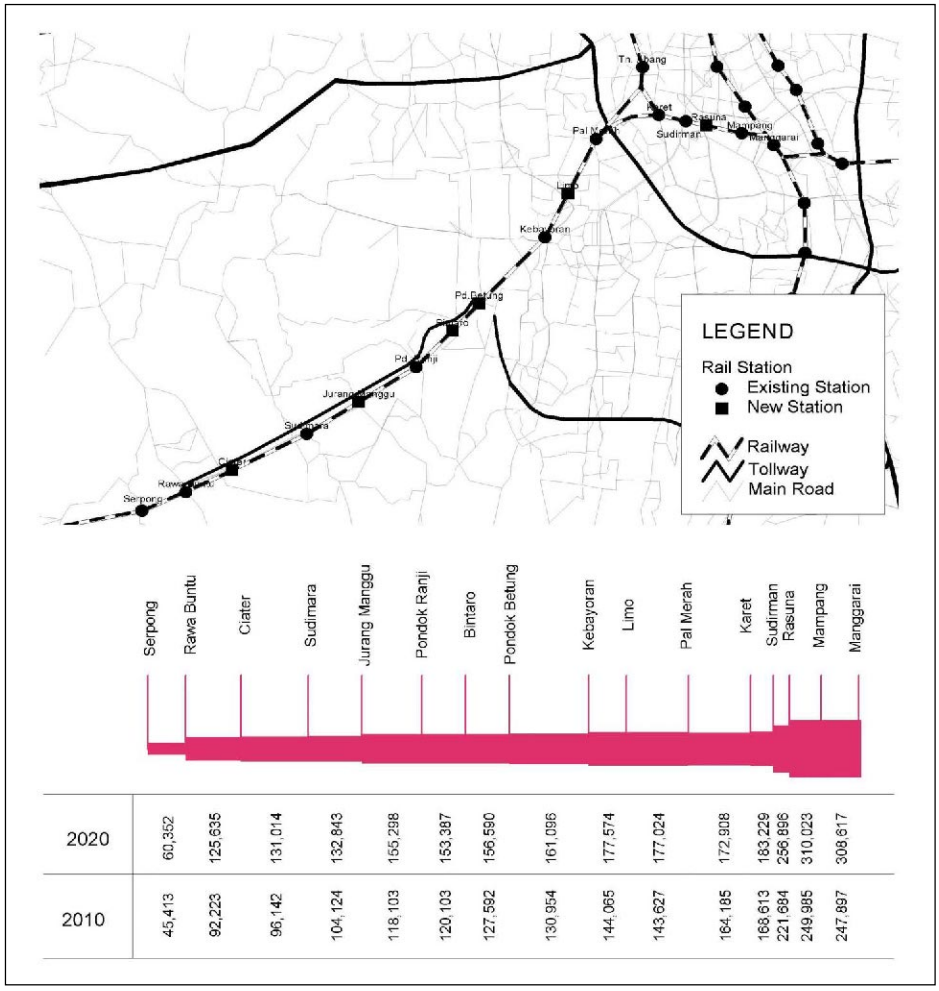

Figure 15.1 Projected Demand in Serpong Railway Line, 2010-2020

15.3 Railway Facility Development Plan

(1) Additional Tracking Plan

The alignment of additional track on the Serpong line is selected at eastern side of the existing single track because space is left in the eastern side of the existing track when “Modernization Project on Serpong Line” was undertaken in 1993 – 1997. The electric poles are also located to the east side (refer to Photos 15.1 and 15.2).

On the contrary the alignment of additional track between Palmerah and Tanah Abang (L=1.2 km) is western side of the existing track in order to connect with the Western line at the Tanah Abang station, and taking an obstacle of existing water gate (Banjir Kanal) into account. The situation is shown in Figures 15.2 and 15.3.

Photo 15.1 Rawa Buntu station

Photo 15.2 Pondok Betung station

(2) Station Structure Plan

The basic station structure is planned to be over-track station to deal with free-rider problems. The Jurang Manggu station was, however, planned as a ground station because it is on an embanked segment (height =5m).

Table 15.2 Station Structural Plan

Station Classification	Serpong Line	Western Line
Over-track Station	1) Serpong, 2) Rawa Buntu, 3) Sudimara, 4) Pondok Ranji, 5) Kebayoran, 6) Palmerah,	1) Karet, 2) Sudirman*), 3) Mampang
New Station (Over-track Station)	1) Ciater, 2) Bintaro, 3) Pondok Betung, 4) Limo	1) Rasuna Said
New Station (Ground Station)	1) Jurang Manggu	-
Total	11 stations	3 stations

*): Sudirman station has no improvable plan.

The stations which need passing track for express trains include Kebayoran, Pondok Ranji, Sudimara and Serpong station. In the track layout plan of the Serpong station, shunting operation for long distance train from Merak is taken into account.

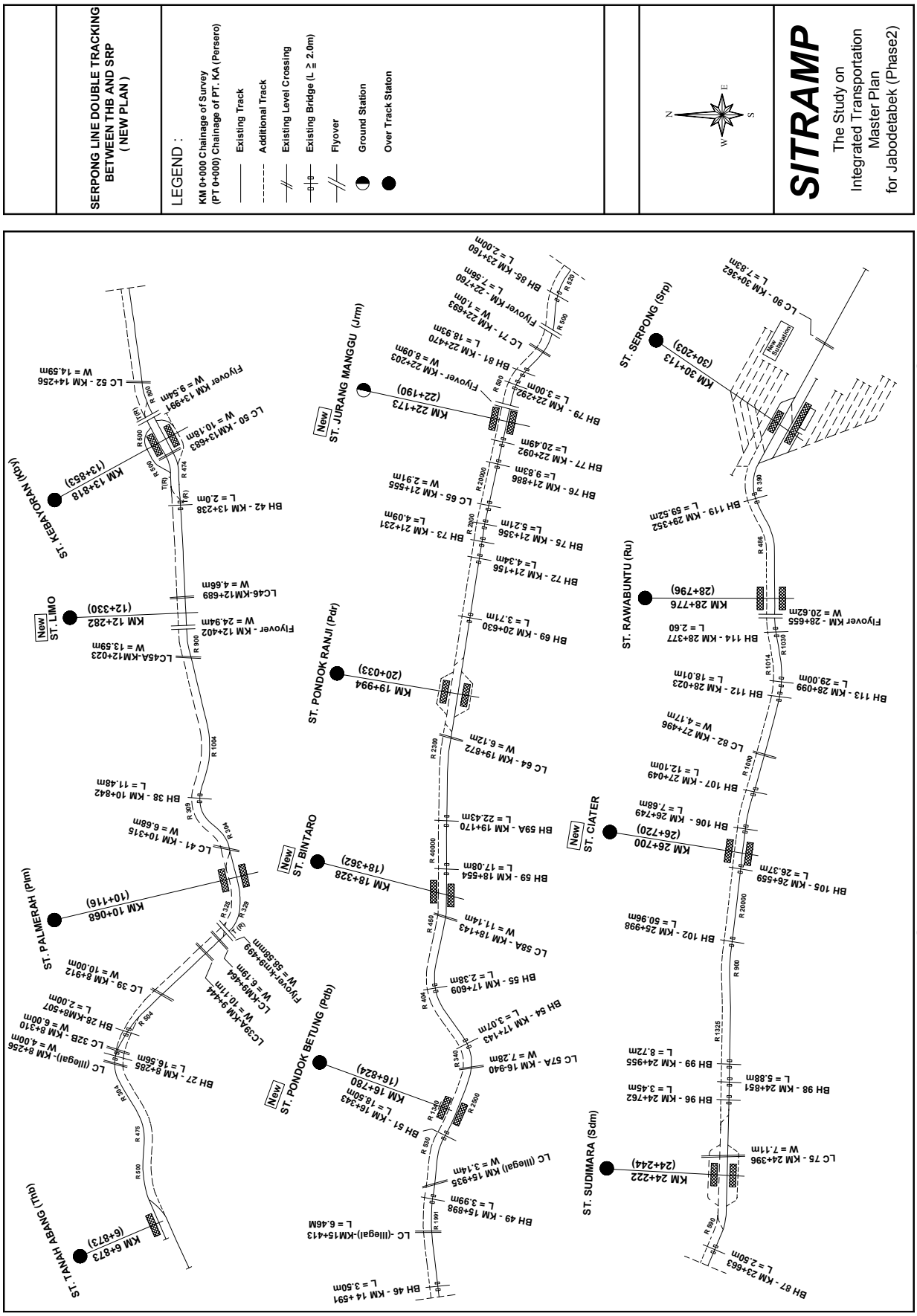

Figure 15.2 Serpong Line Double Tracking Between Tanah Abang and Serpong

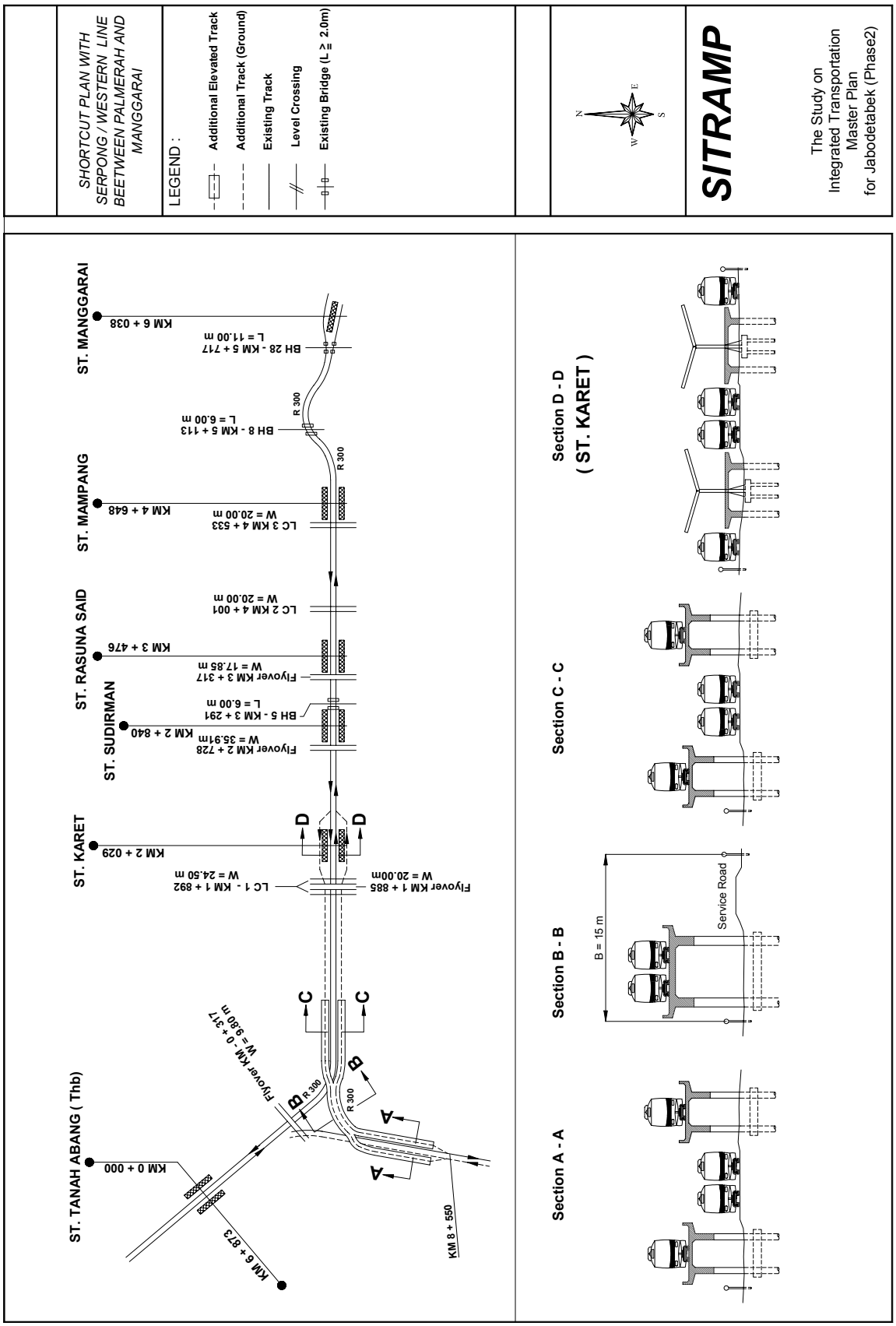

Figure 15.3 Shortcut Plan on Serpong / Western Line Between Palmerah and Manggarai

(3) Palmerah – Karet Shortcut Section

The SITRAMP Master Plan recommended to guide the urban development in east-west direction by improvement of the service level of the Bekasi and Serpong Lines by provision of east-west direct operation. Thus, it is recommended to provide a short-cut between Karet and Palmerah section for smooth operation.

The most important item of the shortcut plan is alignment between Palmerah and Karet; that is, from the point 1.2 km south to the Tabah Abang station to the Karet station through Banjir Kanal with curve of 300-meter radius.

Two alternatives for the alignment were taken into consideration; Alternaitive-1; Elevated Track and Alternative-2; Ground Track. The advantages and disadvantages of the alternatives are explained below.

Alternative 1	This alignment needs a slope with gradient at 2.6%; therefore, the freight train and long/ middle train cannot run on this track.
Alternative 2	In contrast, freight trains and long/middle distance trains can be operated in this section. However, it is necessary to install a scissors-like crossing turnout, which is very risky for train operation, and it is also difficult to maintain the turnout facilities in proper manner.

In conclusion, the alternative-1 is recommended from viewpoint of railway operation safety taking increase of demand in the future into account.

(4) Stabling Yard Plan

The Serpong double tracking project requires additional 166 train cars by 2020. (The number of existing ECs, 26 cars, has been deducted from the total number of train cars required for the train operation in 2020). In order to park additional train cars, new stabling yards are planned in the Serpong station (for 120 Ecs) and at the Rawa Buntu (for the other 46 Ecs).

15.4 Operation Plan

The current train operation is composed of four train cars in one set, however, it is planned that one train shall be composed of eight train cars taking increasing future passenger demand into account. The minimum headway in a peak hour is planned at 7 minutes in 2010 and 5.5 minutes in 2020 based on the projected passenger demand.

Table 15.3 Operation Plan in Peak Hour

Year	Section	Number of Cars (Both direction/ hour)	Headway (Minutes)	Capacity (Both direction)	Passenger Volume (Both direction)
2010	Serpong – Manggarai	9	7	20,000	38,400
2020	Serpong – Manggarai	11	5.5	24,800	48,870

15.5 Cost Estimation

The cost estimation for the Phase 1, “Serpong line double tracking project between Serpong and Tanah Abang”, and the Phase 2, “Shortcut line improvement project between Palmerah and Manggarai”, is shown in Table 15.4.

Table 15.4 Cost Estimation for Phase 1 and Phase 2

Unit: Billion Rp.

Cost Item	Phase 1 (L=23.4 km)			Phase 2 (L=5.2 km)			Remarks
	F/C	L/C	Total	F/C	L/C	Total	
Civil & Track Works	117.3	223.6	340.9	34.0	51.9	85.9	
Electric Facilities	404.6	85.9	490.5	45.1	6.0	51.0	
Building & Depot	95.2	74.8	170.0	23.0	23.0	45.9	
Rolling Stock	280.5	31.5	312.0	884.0	98.6	982.6	40 Cars (Phase1); 126 Cars (Phase 2)
Contingency	90.1	41.7	131.8	98.6	17.9	116.5	
Consulting Service	47.6	29.8	77.4	7.7	6.0	13.6	
Land Acquisition	0	54.4	54.4	0.0	96.1	96.1	A=1.1ha (Phase 1); A=1.2 ha (Phase 2)
Compensation	0	11.1	11.1	0.0	19.6	19.6	
VAT	90.1	41.7	131.8	98.6	17.9	116.5	
Total	1,125.4	594.2	1,719.6	1,190.9	336.6	1,527.5	

Note) 8,500Rp./US$, 77.92 Rp./Yen

15.6 Station Square Development Plan

A station square is an important facility for passenger to interchange from other modes of transportation to railway. Area to be required for station square development was estimated based on the future passenger demand for each railway station. Major station square development plan is listed in Table 15.5. The location of station square development is depicted in Figure 15.4.

Table 15.5 Major Station Square Development Plan

No.	Station	Number of Boarding/ Alighting Passengers per Day		Station Square (m2)			Cost (Rp. Million)
		2010	2020	PT KAI	Local Government	Total	
1	Tanah Abang	33,000	42,000	0	5,600	5,600	78,964
8	Jurang Manggu (New Station)	32,000	44,000	2,000	1,500	3,500	5,238
11	Rawabuntu	50,000	71,000	4,000	2,000	6,000	9,004
14	Sudirman (former Dukuh Atas*)	99,000	124,000	0	2,500	2,500	5,244
15	Rasuna Said (New Station)	49,000	62,000	0	7,000	7,000	0
Total							98,432

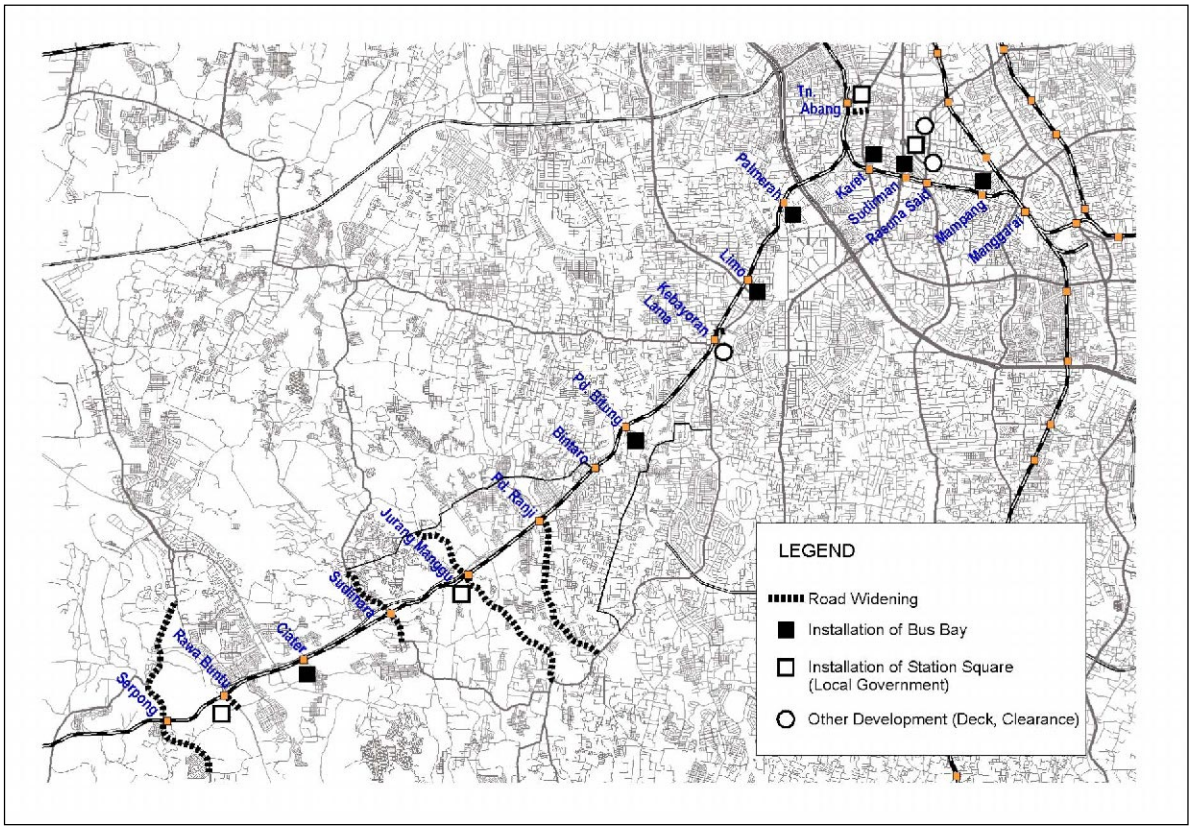

Figure 15.4 Development Plan of Access Roads and Station Squares

15.7 Access Road Development Plan

To make most use of the effect of the Serpong railway Line Improvement, road widening for the major roads to the railway stations as well as bus bay installation where railway station squares are not available. Although It seems difficult to widen the road where the land along the roads is already occupied by houses, continuous efforts should be made to implement road widening of the access roads to bring maximum transportation capability of the railway system. The proposed access road developments are shown in Figure 15.4 as well.

15.8 Implementation Schedule

The implementation schedule of the Phase 1, “Serpong line double tracking project between Serpong and Tanah Abang”, and the Phase 2, “Shortcut line improvement project between Palmerah and Manggarai”, is shown in Figure 15.5.

Item	2006	2007	2008	2009	2010	2011～2020
Land Acquisition	■	Phase 1		■	Phase2	
Phase 1 (SRP-THB) L=23.4km	■	■	■			
Phase 2 (PLM – MRI) L=5.2km				■	■	■
Access Road			■	■	■	■
Station Square			■	■	■	■

Figure 15.5 Implementation Schedule

15.8 Economic and Financial Analysis

(1) Cost Estimates

The Project consists of three packages and total investment cost of the project amounts to Rp. 4,312.4 billion during the period from 2004 to 2020, of which the cost of Serpong Line Double Tacking accounts for 75%.

Table 15.6 Investment Cost of Project

Unit: Rp. million

	Short and Intermediate term (2004~2010)	Long term (2011~2020)	Total
Serpong Line Double Tracking	3,248,000	-	3,248,000
Access Improvement	655,000	311,000	966,000
Integrated Land Development	19,500	78,900	98,400
Total	3,922,500	389,900	4,312,400

(2) Economic Evaluation

The Net Present Value (NPV) discounted by 12% is estimated at Rp. 1,993 billion and the Economic Internal Rate of Return (EIRR) is 18.9 %, which is sufficiently high to reveal the economic viability of the implementation of the project consisting of Serpong Line Double Tracking, Access Improvement and Integrated Land Development.

Table 15.7 Evaluation Index of Economic Analysis

Present Value discounted by 12 % (Rp. billion)					EIRR (%)
Costs	Benefits			Net Present Value	
	Cost savings in VOC and TTC	Avoided cost of Serpong Line Operation	Total Benefits		
2,348	3,999	342	4,341	1,993	18.9 %

The reduction of CO2 emission is considered an important benefit to global environment. The reduction in CO2 emission is estimated to amount approximately to 360,000 tons in 2020 with the project and can be valued at Rp. 30 billion assuming that the value of reduction of CO2 is assumed at US$ 10 per ton.

(3) Financial Analysis

In financial analysis, the financial viability of Serpong Line Double Tracking was evaluated from the point of the affordability of PT. KA to shoulder the cost of the project through passenger tariff revenues. For the evaluation three kinds of tariff level are assumed.

Table 15.8 Alternatives of Passenger Tariff

	Flag fall	Distance portion
Case 1	Rp. 1,000	-
Case 2	Rp. 1,000	Rp. 100/km
Case 3	Rp. 1,000	Rp. 200/km

- In Case 1, the revenue enables PT. KA to shoulder 10 ~ 20% of rolling stock cost and OM cost (FIRR: 15.4% and 8.0% with the burden of 10% and 20% of rolling stock cost and OM cost, respectively).
- In Case 2, the FIRR is 10.0% when PT. KA bears the cost of rolling stock and OM and the FIRR is low for the operation of private business.
- In Case 3, it is expected that PT. KA will make sufficient profits even with the cost burden of rolling stock and OM (FIRR: 19.3%) and be able to shoulder the cost for station building and station plaza (FIRR: 16.8%).

Currently the investment budget for basic infrastructure facilities of railway, such as civil and track works, electrical works and buildings are provided by the government and PT. KA is responsible on the railway operation. As far the cost-sharing between the government and PT. KA, PT. KA is required to pay annually the depreciation cost of infrastructure facilities to the Government as the Track Access Charge (TAC). On the other hand, the government subsidizes the Public Service Obligation (PSO) to PT. KA in order to compensate the deficit due to the low level of passenger tariff for economy class. Actually, despite the principle of the above, those allocations are not sufficiently realized to cover the estimated amount due to the shortage of funds of the government as well as PT. KA.

PT. KA will be unable to manage self-sufficiently when it is required to fulfill the burden of the investment cost as well as OM cost as currently regulated in TAC payment. It would be rational that basic infrastructure facilities, such as civil and track works, electrical and signaling works are invested by the Government and the costs for procurement of rolling stock and operation and maintenance are shouldered through revenues from passengers and commodity transportation by PT. KA. It is crucial to distinguish PT. Ka's cost share from the government budget in order to privatize the management of PT. KA in the future.

15.9 Integration of Transportation System with Land Use through Guidance of Urban Planning

In Jabodetabek, large-scale housing developments have been undertaken by private developers. Land use plans and road network development plan inside the housing complexes have been established by developers and the relevant local government has approved the plan. To make land use consistent with railway transportation system and to integrate transportation system with urban development, local government should prepare a detailed land use plan with land zoning, which specifies floor-area ratio and the building-to-land ratio by area.

Integration between land use and transportation system development is essential for efficiency of railway transportation system development. The concept of Transit-Oriented Development (TOD) should be taken into consideration for railway system development. This implies the necessity of guiding a highly dense urban development in the surrounding area of railway stations. In land use plan, higher floor area should be allocated to the areas within ten-minute walking distance or about 600-meter radius from the stations.

15.10 Implementation Mechanism for Serpong Line Improvement Project

It is well known that transportation system brings about enormous economic benefits but transportation operators cannot fully benefit from the improvement of the transportation service.

To internalize the benefits of railway transportation system development, one way is for a railway company to engage in real estate business along the railway corridor. First, the railway company purchases the land along the railway line and develops them as residential lands prior to improvement of the railway system. The land value would increase after the service level of the railway line is improved. Then the railway company could gain the benefit from a rise of land value in market from its investment. At the same time, residential land development will bring about additional patronage for railway services.

(1) Public-Private Partnership (PPP)

PT. KA, however, does not have personnel with sufficient knowledge in real estate business. It is not proposed at the moment that PT. KA venture into such new business. Instead, it is recommended that PT. KA cooperate with real estate developers such as Bintaro Jaya and Bumi Serpong Damai (BSD) for financial support for access road development, railway station square development and railway station facility development because the developers and their customers would enjoy improved railway services.

(2) Cooperation among Public Corporations

Perumnas has purchased 800 hectares of the land for residential development for mainly low-income households to the south of the Parung Panjang Station on the Serpong Line. Due to the delay of railway service improvement, housing development has not yet been progressed as scheduled.

If the function of Perumnas were expanded to urban development, which can deal with not merely housing development for low-income households but also commercial facility and good quality housing for the middle class, then Perumnas could develop high-rise building in the surrounding areas of the railway station in accordance with the TOD (Transit-Oriented Development) concept.

16. 2ND JORR (OUTER-OUTER RING ROAD)

16.1 Background

This project aims not merely to meet future traffic demand in the region but also to promote sub-center developments, which was proposed in SITRAMP as a preferable regional development strategy in Jabodetabek. The project extends to as long as 110 km and several local governments are involved in the project. In addition, traffic volume varies from section to section. These facts lead to a variety of implementation methods such as introduction of private-sector participation scheme including BOT, public investment and combination with regional development along the road. The study addressed this subject mainly not from a technical aspect but from a viewpoint of available implementation scheme for the project.

16.2 Route

The route connects Koa Tangerang, Kota Depok and Kota Bekasi, functioning as sub-center in the region, and the total length reaches around 110 km (see Figure 16.1).

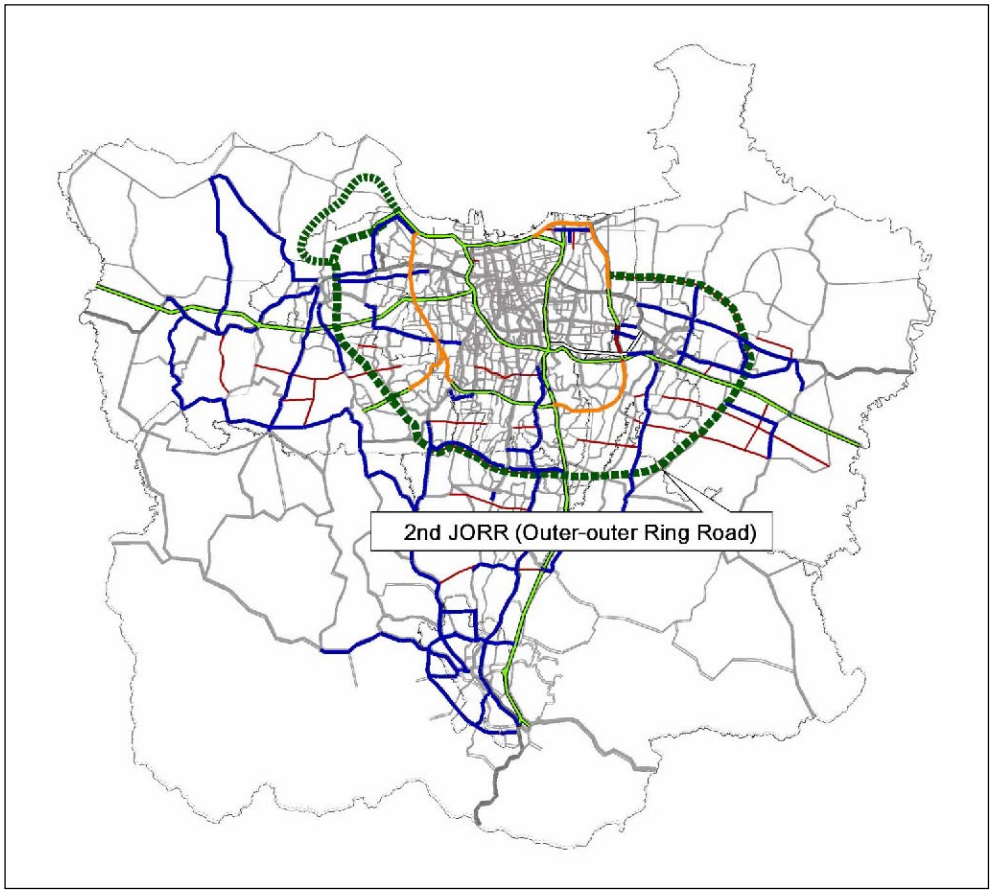

Figure 16.1 2nd JORR Route

16.3 Project Cost

(1) Structural Standard

Full access control is applied to the project road. As traffic volume on some section of 2nd JORR is, however, not so much, an idea of staged construction is introduced. A four-lane cross section is introduced as the first stage and is widened to six lanes in case traffic exceeds the capacity.

(2) Project Cost

Project cost by section is tabulated in Table 16.1.

Table 16.1 Project Cost

Unit: Rp. Billion

IC/JC	Length (km)	Construction Cost	Others	Land Cost	Project Cost
Cenkareng Access					
Merak Tollroad	16.9	800.0	248.1	420.1	1468.2
Serpong Tollroad	10.6	248.6	77.0	246.7	572.3
Jagorawi Tollroad	26.1	741.0	229.4	878.0	1848.4
Cikampek Tollroad	27.1	470.8	145.8	276.1	892.7
JORR East Section	27.6	1553.9	481.6	239.7	2275.2
Total	108.2	3814.3	1,181.9	2,060.6	7,056.8

Note: Cost of 4-lane at the first stage

16.4 Traffic Demand

Average traffic volume in 2020 by major section is shown in Table 16.2. The section between Merak and Jagorawi Toll Roads shows as large as 40,000 to 50,000 pcu. On the other hand, the section between Cikampek Toll Road and Eastside of JORR shows as small as 8,000 pcu. The analysis also revealed that vehicular trips passing through beyond Cikampek Toll Road are very small. In other words, the traffic movement is completely divided by Cikampek Toll Road.

Table 16.2 Traffic Demand by Case

Unit: pcu/day

Case	Conditions	Cengkareng Access	Merak Tollroad	Serpong Tollroad	Jagorawi Tollroad	Cikampek Tollroad	JORR East Section
RE2	No Area development	20,800	44,600	50,500	13,500	7,300	
REA-A1	With Area development	23,700	44,600	54,700	17,000	8,400	
REA-C2	Up to Cikampek*	23,700	46,700	54,800	21,400	-	

Note: *) With area development

16.5 Economic Justification

The results of economic analysis on the basic case (all section is toll road) are shown in Table 16.3 indicating that the project is economically feasible.

Table 16.3 Financial Viability Analysis

Costs (Rp. billion)	Benefits(Rp. billion)			Net Present Value (Rp. billion)	EIRR (%)
	VOC Savings	Travel Time Savings	Total Benefits		
2,020	1,265	1,350	2,615	595	16.3%

Note: Cost and benefit and NPV are discounted by 12%.

16.6 Possible Toll Road Section

(1) Viability Analysis

Alternative cases are set up in terms of toll road section and FIRR on each case was obtained as shown in Table 16.4.

Table 16.4 Results of FIRR by Alternative Case

Toll Road Section Alternative	Condi-tions	Toll Rate		Tariff Raise		Area Develop-ment	Land Cost Burden		FIRR
		Rp. 350 /km	Rp. 500 /km	5% per Annum	7% per Annum		by Investor	Partly by Land Develope r*	
Cengkareng Access to East JORR (all sections)		○		○			○		11.7%
Cengkareng Access to East JORR (all sections)			○	○		○	○		14.8%
Jagorawi Tollroad to Cikampek Tollroad			○	○			○		15.0%
Cengkareng Access to Jagorawi Tollroad			○	○			○		16.0%
Cengkareng Access to Cikampek Tollroad			○	○		○	○	○	16.1%
Cengkareng Access to Cikampek Tollroad			○		○	○	○	○	18.6%

Note: *) Land cost within area development between Siliwangi and Setu is covered by area developer.

(2) Possible Toll Road Section

Based on regional development direction, traffic characteristics and financial viability as a toll road, the analysis on toll-road section alternative led to the following conclusion:

- It is difficult to construct all the section between Cengkareng access and East JORR as the toll road, considering such risks as future changes of economic and social conditions.
- Although the section between Merak Toll Road and Jagorawi Toll Road will surely succeed as toll business from a viewpoint of financial viability, this will not satisfy accomplishment of sub-center development scenario in Jabodetabek. In other words, the preferable regional development will be inevitably stuck.
- The section between Jagorawi Toll Road and Cikampek Toll Road has some difficulties to maintain financial viability as an independent toll road due to moderate traffic volume. Some possibility still remains if revenue pool system is introduced in association with the section between Cengkareng Toll Road and Jagorawi Toll Road and integration with area development, by which land for the toll road is covered. Considering future risk and traffic characteristics, it is preferable to construct the section as a part of the 2nd JORR between Cengkareng Access and Cikampek Toll Road.

(3) Cikampek Toll Road – East JORR

As it would be difficult to construct a toll road from Cikampek Toll Road – East JORR, the following are considered:

- To cope with traffic demand by the existing and future ordinary roads, which are planned in SITRAMP for the time being; and
- To construct this section by public investment under the condition of high mobility highway (HMH) with full- or semi-access control, charging low tariff only to cover maintenance cost if possible.

16.7 Integration with Area Development

In terms of section between Jagorawi Toll Road and Cikampek Toll Road, there are two key issues to keep financial viability as the toll road; securing land for toll road and amplification of traffic. The only solution to meet the requirements is to introduce a large-scale area development

integrated with 2nd JORR. This is expected to satisfy the following:

- The west side of Jabodetabek has large-scale housing complexes such as Bintaro Jaya and BSD. On the other hand, the east side has industrial complexes and some housing complexes in medium size. It is necessary to induce a large-scale area development to strongly promote and put forward “East-west Corridor Development”, which has been used as a slogan for a long time in Jabodetabek.
- The integration with area development induces additional traffic of maximum 16,400 pcu on the stretch. This greatly contributes to improvement of financial viability of toll road and also to easement of problems to construct all the sections between Cengkareng Access and Cikampek Toll Road as the toll road.
- According to the current regulation, the land cost for toll road is covered by Kimpraswil. It seems, however, difficult to appropriate this land cost by the national governmental budget under the current decentralization trend. On the other hand, the local government is also facing financial difficulties as well. Under these situations, it seems inevitable for private investors to cover the land cost and this will, without doubt, reduce the financial viability of the project. The integration of area development with toll road can largely alleviate the problems mentioned above and can secure the right of way of the toll road as well.

16.8 Issues on Implementation

Issues to implement the project are summarized as follows:

(1) Project Management

On the premise that the section between Cengkareng Access and Cikampek Toll Road (around 80 km) will be constructed as the toll road, it is problematic for the related local governments to take an initiative to manage all the procedures necessary to implement the toll road, because all the related local governments have not have much experience on such a big project so far. It is preferable for JTA (Jabodetabek Transportation Authority), which has been proposed in SITRAMP, to manage the project. Furthermore, it becomes also an obstruction for the private investors to take only a certain section independently. All related investors have to be united, if possible, as a consortium to address implementation not only on profitable sections but also on lean section as an even manner.

(2) Preconditions for Viability

Although toll raise was recently permitted, toll tariff had been left low for a long time in Indonesia and the governmental permission is required to raise the toll rate. Toll road is materialized by toll revenue. Setting up of initial toll tariff within the user’s benefits and future raise of toll rate within real growth of GDP per capita become a precondition to materialize toll road business.

(3) Integration with Area Development

The integration of area development with the toll road is also not so easy. The following issues have to be ensured for the implementation:

- It is necessary to stipulate the planning principles and boundary of the area development project in a local spatial plan. This will prevent the plan from uncontrolled development.
- It is preferable, if possible, for one investor to take responsibility for the implementation of area development project. However, in the case that plural investors participate in the project, it is necessary for all the related investors to bear land cost of the toll road, regardless if the area is beside or far from the 2nd JORR.
- It is also easily supposed that some land speculation may happen in association with area development. In terms of land buying/selling within the designated area on the local spatial plan, it is strongly necessary for the local government to manage the land price - not to hike it up - by applying a regulation to obtain permission to buy/sell land.

- As the large-scale area development is required, it is necessary to provide land use in the development to offer job opportunity in order to function as a sub-center.
- Lastly, some public transportation facility development will be required such as extension of busway from Bekasi through Jl. Siliwangi, which is proposed in SITRAMP, or a new rail-based system to connect Bekasi Railway Line to the area development along the 2nd JORR.