

Table 12.5.2 Profit & Loss Statement (Case-II-3)

(Unit: Million Baht)

		1991	1996	2003	2013	
Revenue	Revenue	177	1,213	3,203	7,234	
	(Operating income)	(140)	(987)	(2,697)	(6,327)	
Operating expense and operations profit	Base case	Operating expense	689	4,027	7,718	12,810
		(Working cost)	(117)	(708)	(1,769)	(3,896)
		(Interest payment)	(446)	(2,532)	(4,000)	(4,876)
		(Depreciation)	(126)	(787)	(1,949)	(4,038)
		Operating profit	-512	-2,814	-4,515	-5,576
	Finance plan No. 1	Operating expense	495	2,961	6,175	11,159
		(Working cost)	(117)	(708)	(1,769)	(3,896)
		(Interest payment)	(252)	(1,466)	(2,457)	(3,224)
		(Depreciation)	(126)	(787)	(1,949)	(4,038)
		Operating profit	-318	-1,748	-2,972	-3,925
	Finance plan No. 2 & No. 3	Operating expense	301	1,894	4,633	9,507
		(Working cost)	(117)	(708)	(1,769)	(3,896)
		(Interest payment)	(58)	(399)	(915)	(1,573)
		(Depreciation)	(126)	(787)	(1,949)	(4,038)
		Operating profit	-124	-681	-1,430	-2,273

Note: Figures show cumulative amount.

12.5.2 Net Cash Flow

(1) Table 12.5.3 and 4 show net cash flow in both base cases.

Table 12.5.3 Major Items for Cash Flow Projection (Case-I-2)

(Unit: Million Baht)

	1984~1991	1992~1996	1997~2003	2004~2013	Total
Operating profit	-375 (-375)	-1,748 (-350)	-1,484 (-212)	-983 (-98)	-4,590
Investments	3,383	743	1,124	1,703	6,953
Loan repayment, Interest payment	389	2,470	2,962	1,257	7,078
Net cash flow	-329 (-329)	-2,121 (-424)	-3,042 (-435)	-1,004 (-100)	-6,496

Note: Figures in () show annual average amounts.

Table 12.5.4 Major Items for Cash Flow Projection (Case-II-3)

(Unit: Million Baht)

	1984~1991	1992~1996	1997~2003	2004~2013	Total
Operating profit	-512 (-512)	-2,303 (-461)	-1,700 (-243)	-1,061 (-106)	-5,576
Investments	4,455	536	1,340	1,742	8,073
Loan repayment, Interest payment	515	3,268	3,582	1,196	8,561
Net cash flow	-454 (-454)	-2,841 (-568)	-3,837 (-548)	-944 (-94)	-8,076

Note: Figures in () show annual average amounts.

As shown in the above tables, if SRT bears all of the debt service payment, the net cash flow in both cases causes a considerable cash shortage every year, and their cumulative amounts are almost equal to their investment amounts.

- (2) Further, on the assumption that SRT obtains subsidies according to the finance plans set out in Table 12.4.3, the results of the cumulative net cash flow are as shown in Table 12.5.5.

Table 12.5.5 Cumulative Net Cash Flow by Finance Plan

(Unit: Million Baht)

Finance plan Case	Base	Plan No. 1	Plan No. 2	Plan No. 3
Case-I-2	-6,496.4	-3,634.1 (2,862.3)	-771.7 (5,724.6)	+582.3 (7,078.7)
Case-II-3	-8,075.9	-4,581.7 (3,494.2)	-1,087.4 (6,988.5)	+485.8 (8,561.7)

- Notes: 1. Figures in () show subsidies.
2. Details are shown in Appendixes 12.5.3 and 4.

12.6 Evaluation

12.6.1 Profitability

The financial peculiarity of the Project was already mentioned in 12.1.1. As shown in Tables 12.5.1 and 2, both cases produce operating income sufficient to cover working costs; however, they cannot become profitable at the level of operating profit through the whole project life due to the heavy burden of interest payment and depreciation.

However, attention should be paid to the assumption that the current fare rates would remain unchanged during the project life.

12.6.2 Necessity of Government Financial Support for SRT

As per Tables 12.5.3 and 4, although the investment in the track elevation project means a heavy financial burden for SRT, considering the national economic benefits, it may be desirable to execute some form of Government financial support such as subsidies for SRT.

CHAPTER 13 CONCLUSION

CHAPTER 13 CONCLUSION

13.1 Study Findings

It is found in the Study that the "Track Elevation Project of Existing Railway Lines in the Bangkok Metropolitan Area" (hereinafter referred to as "the Project") to eliminate grade crossings is feasible from a national economic standpoint. This is because the EIRR in every study case exceeds 12 or 13 percent, which is generally said to be the international feasible level. The Project can be considered to be more beneficial than not only eliminating the grade crossings by flyovers but also leaving them as they are.

Of all the study cases, CASE II (high-level service type), which makes more use of existing railway lines as well as elevates tracks, is the most highly recommended. In other words, railway transportation should have an increasing share in urban transportation, making the most of railway characteristics such as mass transit, speed, safety and punctuality. It would also alleviate traffic congestion of main roads and contribute to the sound development of the Bangkok Metropolitan Area.

Of the two track elevation alternatives investigated in the Study, the immediate elevation of two lines, the Eastern and the Northern Lines (a total of 10 km), is more beneficial than initially elevating three lines (a total of 13 km) including the Mae Nam Line.

When enormous freight traffic comes from the Eastern Seaboard, even though most of it will pass through the Northern Link Line, which is expected to open to traffic by 1991, freight traffic through Bangkok area will double. It will be impossible to handle this traffic volume if grade crossings remain. Therefore, at first, the Eastern and the Northern Lines must be elevated. Then the Mae Nam Line will be considered for elevation depending on the situation in terms of freight traffic volume on it and on the progress of Mass Transit System by ETA.

It is true that the Project is feasible from a national economic point of view, but financing the Project will be a heavy burden for SRT as a corporation.

From the economic analysis, it is obvious that the Project will have a beneficial impact on urban activities, including great savings of time and energy for road users, safety of traffic and the development of areas around the railway.

Therefore, national or municipal government support and special considerations (provision of subsidies for construction interest, etc.) may be indispensable in promoting the Project.

13.2 Measures to Be Taken along with Track Elevation

As previously mentioned, by taking advantage of this opportunity, SRT should be able to contribute to urban transportation. To meet that goal, it is essential that SRT makes the following efforts in addition to operating more trains and constructing new railway stations.

(1) Facilities improvement by SRT

- Improve Bangkok Station Yard facilities such as for turnback operations, easy rolling stock in-depot and out-depot, and separation of main tracks from drill tracks.
- Improve rolling stock storage and inspection/repair facilities considering the capacity of Bangkok Station and Makkasan Workshop respectively.
- Improve Bang Sue Yard to deal with a large amount of freight traffic from the Eastern Seaboard.

(2) Various improvements by the concerned authorities

- Improve facilities related to urban transportation such as access roads to railway stations and station plazas.
- Rearrange bus networks in accordance with railway stations.
- Take countermeasures such as separating grade crossings or establishing priority for railway operation at grade crossings in the unelevated section in the Bangkok Metropolitan Area.

- Promote effective land use around the elevated section by means of appropriate city plans considering urban development and street plans centered around railway stations.

13.3 Suggestions for Future Urban Transportation

Separation of grade crossings is a basic part of urban infrastructure. The Project will not only contribute to solve urban traffic problems in the Bangkok Metropolitan Area, but will also promote general urban development. Therefore, the Project should be made more effective by establishing an urban transport Master Plan for the Greater Bangkok Area as early as possible, considering all transportation modes.

In other words, the Project provides an opportunity to deal with increasing urban traffic demands by changing the railway transport system into the main transport mode as well as rearranging the urban road network. For example, SRT and ETA should unify track gauges for SRT lines and ETA's planned Mass Transit System and coordinate the operation of these systems with the bus network. They should also coordinate the fare and rate system.

All of these things will contribute to the sound development of the Bangkok Metropolitan Area.

APPENDIX

Appendix 3.2.1 Traffic Volume on Railway Crossing (6:00 to 18:00)

Unit: Vehicles per 12 hours

No.	Name of road	Condition		Bicycle-motor-cycle	Automobiles							Total	
		Width (M)	Type of barrier		Pedestrian	Tri-cycle	Private car	Taxi	Bus (Pick-up)	Bus	Truck (Pick-up)		Truck
1	Phetburi Rd.	21.8	Bascule	12,788	9,048	4,781	19,878	6,238	1,473	3,076	4,716	2,122	42,284
2	Sriyutthaya Rd.	25.0	"	7,065	871	2,504	21,565	6,912	1,543	1,862	4,386	1,159	39,931
3	Rajavithi Rd.	19.0	"	2,639	814	2,061	14,755	5,097	1,290	1,739	3,039	1,406	29,387
4	Nakornchaisri Rd.	12.2	"	2,612	1,906	2,298	5,088	2,081	913	411	1,139	276	12,206
5	Setsiri Rd.	8.0	"	2,344	1,059	725	5,937	1,753	168	32	1,335	309	10,259
6	Ranong I Rd.	4.5	"	1,009	1,426	249	2,258	959	-	5	1,145	384	5,000
7	Pradipat Rd.	15.0	"	4,771	936	1,223	11,887	3,682	1,438	1,100	2,432	1,591	23,353
8	Rama VI Rd.	24.0	"	7,266	4,804	3,906	12,832	5,316	733	690	2,441	484	26,402
9	Phyathai Rd.	25.4	"	12,370	6,241	3,811	23,387	7,727	564	2,266	4,907	1,145	43,807
10	Rajaprarop Rd.	18.0	"	12,292	12,827	3,843	12,837	7,909	1,342	2,643	3,732	1,304	33,610
11	Makkasan Rd.	6.0	"	2,579	654	936	5,270	1,918	76	200	1,194	287	9,881
12	Phetburi Rd.	18.4	Sliding	12,872	1,110	1,605	25,538	7,105	727	2,534	4,875	1,978	44,362
13	Sukhumvit Rd.	20.5	Bascule	10,739	6,478	1,436	18,709	7,153	1,293	1,422	4,998	837	35,848
14	Rama IV Rd.	24.5	Sliding	21,323	2,477	3,988	21,315	7,069	1,328	2,125	5,910	3,642	45,377
	Total			112,669	50,651	33,366	201,256	70,919	12,888	20,105	46,249	16,924	401,707

Appendix 3.2.2 Amount of Traffic Blocked by Barrier Time (6:00 to 18:00)

Unit: Vehicles per 12 hours

No.	Name of road	Fre- quency	Barrier time			Traffic block									
			Per train		12 hours (sec)	Bicycle motor- cycle	Pedes- trian	Automobiles					Truck (pick- up)	Truck	Total
			Aver. (sec)	Min. Max. (sec)(sec)				Tri- cycle	Private car	Taxi	Bus (pick- up)	Bus			
1	Phetburi Rd.	73	128	106 157	9,344	1,957	2,766	1,034	4,300	1,349	319	665	1,020	459	9,146
2	Sriayuthaya Rd.	69	119	102 142	8,211	166	1,343	476	4,099	1,314	293	354	834	220	7,590
3	Rajavithi Rd.	74	107	92 131	7,918	149	484	378	2,704	934	236	319	557	258	5,386
4	Nakornchaisri Rd.	69	99	80 118	6,831	301	413	363	805	329	144	65	180	44	1,930
5	Setsiri Rd.	68	118	99 140	8,024	197	435	135	1,102	326	31	6	248	57	1,905
6	Ranong I Rd.	66	100	83 129	6,600	217	154	38	345	147	-	1	175	59	765
7	Pradipat Rd.	69	101	86 119	6,969	151	770	197	1,918	594	232	177	392	257	3,767
8	Rama VI Rd.	43	132	111 160	5,676	631	955	513	1,686	698	96	91	321	63	3,468
9	Phyathai Rd.	43	128	115 143	5,167	746	1,480	456	2,797	924	67	271	587	137	5,239
10	Rajaprarop Rd.	40	107	97 118	4,280	1,271	1,218	381	1,272	784	133	262	370	129	3,331
11	Makkasan Rd.	14	99	93 104	1,386	21	83	30	169	62	2	6	38	9	316
12	Phetburi Rd.	12	108	104 112	1,296	33	386	48	766	213	22	76	146	59	1,330
13	Sukhumvit Rd.	12	122	105 119	1,344	202	334	45	582	223	40	44	155	26	1,115
14	Rama IV Rd.	16	151	136 165	2,416	139	1,193	223	1,192	395	74	119	331	204	2,538
	Total	668	*116	*101 *133	*5,390	6,181	12,014	4,317	23,737	8,292	1,689	2,456	5,354	1,981	47,826

Note: * mark indicates average barrier time per train.

Appendix 3.2.3 Interview Survey Schedule

	Oct.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1. Bus interview survey North Terminal South Terminal East Terminal																						
				○																		
					○																	
2. Railway interview survey Wong Wing Yai Bangkok (Departure) Bangkok (Arrival) Thon Buri (Departure) Thon Buri (Arrival) Don Muang																						

Appendix 3.2.4 Purpose of Journey by Origin Station

Unit: Person

	Education	Work	Shopping	Private matters	Business	Leisure	Other	Total
1. Railway passengers								
Bangkok	528 (23.4)	900 (39.9)	123 (5.4)	141 (6.2)	175 (7.7)	321 (14.2)	71 (3.2)	2,259 (100)
Sam Sen	18 (15.3)	62 (52.6)	7 (5.9)	2 (1.7)	7 (5.9)	19 (16.1)	3 (2.5)	118 (100)
Bang Sue	31 (17.9)	73 (42.2)	0 (0.0)	15 (8.7)	15 (8.7)	36 (20.8)	3 (1.7)	173 (100)
Bang Khen	59 (10.2)	351 (60.9)	3 (0.5)	27 (4.7)	12 (2.1)	88 (15.3)	36 (6.3)	576 (100)
Thung Song Hong	3 (7.9)	30 (79.0)	0 (0.0)	1 (2.6)	0 (0.0)	4 (10.5)	0 (0.0)	38 (100)
Lak Si	3 (4.5)	55 (82.1)	0 (0.0)	1 (1.5)	1 (1.5)	7 (10.4)	0 (0.0)	67 (100)
Don Muang	46 (12.1)	241 (63.2)	9 (2.4)	26 (6.8)	13 (3.4)	35 (9.2)	11 (2.9)	381 (100)
Makkasan	43 (26.4)	63 (38.6)	7 (4.3)	6 (3.7)	12 (7.4)	23 (14.1)	9 (5.5)	163 (100)
Khlon Tan	39 (30.2)	47 (36.4)	6 (4.6)	6 (4.7)	9 (7.0)	18 (14.0)	4 (3.1)	129 (100)
Fua Mak	16 (22.2)	48 (66.6)	1 (1.4)	1 (1.4)	2 (2.8)	3 (4.2)	1 (1.4)	72 (100)
Hua Thakhe	24 (22.8)	52 (49.5)	1 (1.0)	2 (1.9)	6 (5.7)	17 (16.2)	3 (2.9)	105 (100)
Thon Buri	17 (20.5)	44 (53.0)	5 (6.0)	2 (2.4)	3 (3.6)	11 (13.3)	1 (1.2)	83 (100)
Sala Tamsop	10 (27.8)	7 (19.4)	3 (8.3)	1 (2.8)	1 (2.8)	14 (38.9)	0 (0.0)	36 (100)
Salaya	8 (26.7)	6 (20.0)	3 (10.0)	3 (10.0)	1 (3.3)	7 (23.3)	2 (6.7)	30 (100)
Wang Wing Yai	229 (17.3)	376 (28.5)	113 (8.6)	164 (12.4)	52 (3.9)	267 (20.2)	119 (9.1)	1,320 (100)
Sampling total	1,191 (19.0)	2,648 (42.3)	305 (4.9)	472 (7.5)	355 (5.7)	1,007 (16.1)	284 (4.5)	6,262 (100)
2. Bus passengers								
North Terminal	97 (11.3)	247 (28.7)	15 (1.7)	40 (4.7)	41 (4.8)	322 (37.5)	97 (11.3)	859 (100)
South Terminal	268 (22.7)	302 (25.5)	28 (2.4)	54 (4.6)	30 (2.5)	386 (32.7)	114 (9.6)	1,182 (100)
East Terminal	70 (12.5)	112 (20.0)	26 (4.6)	52 (9.3)	36 (6.4)	221 (39.4)	44 (7.8)	561 (100)
Ayuthaya	15 (12.8)	36 (30.8)	1 (0.9)	5 (4.3)	8 (6.8)	42 (35.9)	10 (8.5)	117 (100)
Nakhon Pathom	71 (32.7)	66 (30.4)	4 (1.8)	8 (3.7)	8 (3.7)	57 (26.3)	3 (1.4)	217 (100)
Chachoeng Sao	30 (19.0)	28 (17.7)	3 (1.9)	11 (7.0)	2 (1.3)	68 (43.0)	16 (10.1)	158 (100)
Sampling total	694 (18.9)	947 (25.9)	96 (2.6)	196 (5.3)	150 (4.1)	1,274 (34.8)	308 (8.4)	3,665 (100)

Note: () indicates % of total Volume.

Appendix 3.2.5 Origin/Destination Place from/to Railway Station (Distance)

Vehicle of journey Distance (km)	On foot		Bicycle		Motorcycle		Tricycle		Car		Taxi		Bus (Pick up)		Truck		Train		Boat		Total			
	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%		
0-1	1557	75.3	18	0.9	32	1.5	56	2.8	23	1.1	7	0.3	75	3.7	222	10.8	1	0.0	9	0.4	65	3.2	2070	100
1-5	214	12.1	27	1.5	41	2.3	113	6.4	55	3.1	64	3.6	254	14.5	924	52.5	1	0.0	11	0.6	60	3.4	1764	100
5-10	84	7.7	2	0.2	11	1.0	32	2.9	35	3.2	61	5.6	104	9.5	711	65.1	0	0.0	15	1.4	37	3.4	1092	100
10-15	60	9.7	4	0.7	4	0.7	10	1.6	12	1.9	23	3.7	46	7.4	432	69.6	0	0.0	4	0.7	25	4.0	620	100
15-20	26	9.1	0	0.0	3	1.0	3	1.0	8	2.8	22	7.7	24	8.4	189	65.9	0	0.0	3	1.0	9	3.1	287	100
20-25	7	5.7	1	0.8	0	0.0	0	0.0	9	7.4	10	8.2	10	8.2	79	64.7	0	0.0	3	2.5	3	2.5	122	100
25-30	7	9.1	0	0.0	0	0.0	1	1.3	2	2.6	7	9.1	11	14.3	40	51.9	0	0.0	4	5.2	5	6.5	77	100
30-40	9	19.6	0	0.0	0	0.0	1	2.2	4	8.7	2	4.3	1	2.2	25	54.3	1	2.2	1	2.2	2	4.3	46	100
40 <	26	15.5	0	0.0	2	1.2	1	0.6	1	0.6	5	3.0	19	11.3	71	42.2	0	0.0	39	23.2	4	2.4	168	100
Total	1990	31.9	52	0.8	93	1.5	222	3.6	149	2.4	201	3.2	544	8.7	2693	43.1	3	0.0	89	1.4	210	3.4	6246	100

Appendix 3.2.6 Origin/Destination Place from/to Bus Stop (Distance)

Vehicle of Journey Distance (km)	On foot		Bicycle		Motorcycle		Tricycle		Car		Taxi		Bus (pick up)		Bus		Truck		Train		Boat		Total			
	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%		
0-1	540	77.3	12	1.7	24	3.4	15	2.1	3	0.4	4	0.6	33	4.7	61	8.9	0	0.0	0	0.0	0	0.0	6	0.9	698	100
1-5	105	13.1	23	2.9	50	6.3	54	6.8	25	3.1	23	2.9	141	17.7	354	44.4	1	0.1	1	0.1	21	2.6	798	100		
5-10	69	9.6	1	0.1	17	2.4	17	2.4	21	2.9	58	8.1	97	13.5	424	59.0	0	0.0	0	0.0	14	2.0	718	100		
10-15	49	9.4	1	0.2	7	1.4	7	1.4	11	2.1	36	6.9	73	14.0	321	61.7	0	0.0	1	0.2	14	2.7	520	100		
15-20	41	12.2	0	0.0	2	0.6	5	1.5	13	3.9	20	6.0	21	6.3	218	65.0	1	0.3	3	0.9	11	3.3	335	100		
20-25	11	5.8	0	0.0	2	1.1	0	0.0	5	12.6	11	5.6	26	13.8	130	68.8	0	0.0	1	0.5	3	1.6	189	100		
25-30	7	5.6	0	0.0	1	0.8	0	0.0	1	0.8	10	7.9	14	11.1	88	69.8	0	0.0	0	0.0	5	4.0	126	100		
30-40	7	10.8	0	0.0	0	0.0	0	0.0	1	1.5	6	9.2	7	10.8	40	61.6	0	0.0	1	1.5	3	4.6	65	100		
40 <	16	7.8	0	0.0	3	1.5	3	1.5	4	2.0	7	3.4	16	7.8	149	73.0	0	0.0	4	2.0	2	1.0	204	100		
Total	845	23.1	37	1.0	106	2.9	101	2.8	84	2.3	175	4.8	428	11.7	1785	48.9	2	0.0	11	0.3	79	2.2	3653	100		

Appendix 3.2.7 Origin/Destination Place from/to Railway Station (Time)

Vehicle of journey Time (min.)	On foot		Bicycle		Motorcycle		Tricycle		Car		Taxi		Bus (Pick up)		Bus		Truck		Train		Boat		Total	
	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%
0-5	738	59.4	11	0.9	47	3.8	56	4.5	31	2.5	7	0.6	81	6.5	205	16.5	1	0.1	8	0.6	57	4.6	1242	100
5-10	580	42.6	28	2.1	19	1.4	76	5.6	34	2.5	19	1.4	154	11.3	404	29.7	1	0.0	10	0.7	37	2.7	1362	100
10-20	369	26.6	8	0.6	17	1.2	48	3.5	30	2.2	67	4.8	110	7.9	684	49.4	0	0.0	7	0.5	45	3.3	1385	100
15-30	125	14.7	3	0.4	4	0.5	24	2.8	27	3.2	46	5.4	76	9.0	516	60.7	0	0.0	7	0.8	21	2.5	849	100
30-40	57	17.4	1	0.3	0	0.0	5	1.5	7	2.1	15	4.6	27	8.3	198	60.6	0	0.0	2	0.6	15	4.6	327	100
40-50	34	10.9	0	0.0	2	0.6	1	0.3	5	1.6	16	5.1	27	8.6	207	66.1	0	0.0	8	2.6	13	4.2	313	100
50-60	34	11.3	0	0.0	0	0.0	6	2.0	8	2.7	16	5.3	29	9.6	193	64.1	0	0.0	4	1.3	11	3.7	301	100
60-90	23	9.1	1	0.4	1	0.4	1	0.4	5	2.0	13	5.1	16	6.3	179	70.8	1	0.4	4	1.6	9	3.6	253	100
90 <	31	14.8	0	0.0	3	1.4	2	1.0	3	1.4	2	1.0	24	11.4	105	50.0	0	0.0	38	18.0	2	1.0	210	100
Total	1991	31.9	52	0.8	93	1.5	219	3.5	150	2.4	201	3.2	544	3.7	2691	43.1	3	0.0	88	1.4	210	3.4	6242	100

Appendix 3.2.8 Origin/Destination Place from/to Railway Station (Time)

Vehicle of journey time to bus terminal (min.)	On foot		Bicycle		Motorcycle		Tricycle		Car		Taxi		Bus (pick up)		Bus		Truck		Train		Boat		Total	
	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%	Fre- quency	%
0-5	329	62.2	10	1.9	42	7.9	19	3.6	14	2.6	2	0.4	53	10.0	57	10.8	0	0.0	0	0.0	3	0.6	529	100
5-10	179	34.6	16	3.1	25	4.8	31	6.0	15	2.9	12	2.3	75	14.5	152	29.3	0	0.0	1	0.2	12	2.3	518	100
10-20	132	21.6	9	1.5	18	3.0	32	5.2	15	2.5	30	4.9	96	15.7	260	42.6	1	0.2	0	0.0	17	2.8	610	100
20-30	48	8.0	1	0.2	12	2.0	12	2.0	18	3.0	63	10.5	76	12.6	352	58.6	0	0.0	2	0.3	17	2.8	601	100
30-40	50	19.9	1	0.4	3	1.2	1	0.4	6	2.4	22	8.8	26	10.4	137	54.5	0	0.0	0	0.0	5	2.0	251	100
40-50	28	11.8	0	0.0	4	1.7	1	0.4	4	1.7	19	8.0	22	9.2	154	64.7	0	0.0	1	0.4	5	2.1	238	100
50-60	17	5.3	0	0.0	2	0.6	0	0.0	4	1.2	13	4.0	28	8.6	252	77.8	0	0.0	0	0.0	8	2.5	324	100
60-90	43	13.0	0	0.0	1	0.3	3	0.9	4	1.2	6	1.8	36	10.9	229	69.2	0	0.0	1	0.3	8	2.4	331	100
90 <	21	8.2	0	0.0	0	0.0	2	0.8	4	1.6	8	3.1	18	7.0	192	75.0	1	0.4	6	2.3	4	1.6	256	100
Total	847	23.2	37	1.0	107	2.9	101	2.8	84	2.3	175	4.6	430	11.8	1785	46.7	2	0.0	11	0.3	79	2.2	3658	100

Appendix 3.2.9 Requirement for Improvement of Railway Transport.

Need of improvement Purpose of journey	Increase number of trains		Safety		Increase speed		Improve ticket price		Increase passenger's car		Cleanliness		On time arrival or departure		No need of improvement		Other		Total	
	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%
Education	288	24.9	36	3.1	140	12.1	33	2.9	270	23.4	224	19.4	152	13.1	7	0.6	6	0.5	1156	100
Work	577	22.5	39	1.5	274	10.7	43	1.7	643	25.0	332	13.0	578	22.6	41	1.6	36	1.4	2563	100
Shopping	54	18.6	15	5.2	49	16.8	9	3.1	76	26.1	53	18.2	23	7.9	4	1.4	8	2.7	291	100
Private matter	67	14.9	39	8.7	64	14.3	9	2.0	59	13.1	146	32.5	38	8.5	21	4.7	6	1.3	449	100
Business	58	16.9	14	4.1	46	13.4	10	2.9	64	18.7	102	29.8	34	9.9	8	2.3	7	2.0	343	100
Leisure	186	19.9	40	4.3	145	15.5	35	3.7	198	21.2	192	20.2	86	9.3	33	3.5	23	2.5	938	100
Other	34	12.7	7	2.6	23	8.6	11	4.1	63	23.4	60	22.3	63	23.4	6	2.2	2	0.7	269	100
Total	1264	21.0	190	3.2	741	12.3	150	2.5	1373	22.9	1109	18.5	974	16.2	120	1.5	88	2.0	6009	100

Appendix 3.2.10 Reason for Not Using Railway Transport

Reason for not traveling by Railway Purpose	No train		Time consuming		Another alternative		Dangerous		No train during the trip		Expensive		Crowded		Not comfortable		Other		Total	
	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%	Fre-quency	%
Education	234	34.3	195	28.6	64	9.4	3	0.4	102	15.0	3	0.4	12	1.8	66	9.7	3	0.4	682	100
Work	209	22.5	306	32.8	96	10.3	7	0.8	141	15.2	7	0.8	15	1.6	148	15.9	1	0.1	930	100
Shopping	10	10.4	39	40.7	18	18.8	1	1.0	12	12.5	1	1.0	2	2.1	13	13.5	0	0.0	96	100
Leisure	224	17.8	416	33.0	181	14.4	5	0.4	180	14.3	4	0.3	13	1.0	232	18.4	5	0.4	1260	100
Business	18	12.2	47	32.0	29	19.7	1	0.7	20	13.6	1	0.7	6	4.1	25	17.0	0	0.0	147	100
Private matter	35	18.5	60	31.7	28	14.8	0	0.0	31	16.4	2	1.1	6	3.2	27	14.3	0	0.0	189	100
Other	43	14.3	69	22.9	48	15.9	2	0.7	35	11.6	5	1.7	4	1.3	92	30.6	3	1.0	301	100
Total	773	21.4	1132	31.5	464	12.9	19	0.5	521	14.5	23	0.6	58	1.6	603	16.7	12	0.3	3605	100

Appendix 3.3.7 (1) General Status of Train Operation

Northern Line

Distance from Bangkok	23 km										90 km										133 km										161 km										246 km										319 km										389 km										488 km										534 km										642 km										751 km									
	Bangkok ~ Don Muang		Don Muang ~ Ban Phachi		Ban Phachi ~ Lop Buri		Lop Buri ~ Ban Mi		Ban Mi ~ Nakhon Sawan		Nakhon Sawan ~ Taphan Hin		Taphan Hin ~ Phitsanulok		Phitsanulok ~ Sila At		Sila At ~ Den Chai		Den Chai ~ Nakhon Lampang		Nakhon Lampang ~ Chaieng Mai																																																																																									
Section	Bangkok ~ Don Muang		Don Muang ~ Ban Phachi		Ban Phachi ~ Lop Buri		Lop Buri ~ Ban Mi		Ban Mi ~ Nakhon Sawan		Nakhon Sawan ~ Taphan Hin		Taphan Hin ~ Phitsanulok		Phitsanulok ~ Sila At		Sila At ~ Den Chai		Den Chai ~ Nakhon Lampang		Nakhon Lampang ~ Chaieng Mai																																																																																									
Section length (km)	22		68		43		28		85		73		70		99		46		108		109																																																																																									
Maximum speed (km/h)	80		80		80		80		80		80		80		80		50km/h (497~533)		*		**																																																																																									
Maximum gradient (‰)	less than 10%		"		"		"		"		"		"		"		20		20		26																																																																																									
Effective length of track in the station (m)	500		500		500		500		500		500		500		500		450		450		400																																																																																									
Operating condition	ALSTHOM		a) b)		"		"		"		"		"		"		"		600, 600		600, 600		500, 500																																																																																							
	GE		"		"		"		"		"		"		"		"		520, 520		520, 520		440, 440																																																																																							
	KRUPP		"		"		"		"		"		"		"		"		440, 480		400, 440		360, 400																																																																																							
Number of trains	Express train		2		2		2		2		2		2		2		2		2		2		2																																																																																							
	Rapid train		6		6		6		6		6		6		6		6		6		6		6																																																																																							
	Ordinary train		② 14		② 14		② 16		② 14		② 16		② 14		② 12		② 8		② 6		② 4		② 4																																																																																							
	Commuter train		② 22		② 12		② 10																																																																																																							
	Subtotal		④ 44		④ 34		④ 24		④ 22		④ 24		④ 22		④ 20		④ 16		④ 12		④ 10		④ 10																																																																																							
Mixed train	2		2		2		2		2		2		2		2		2		2		2		2																																																																																							
	Every day operated train		16		14		14		14		14		14		14		14		14		14		14																																																																																							
	As required train		14		12		12		10		8		6																																																																																																	
Freight	30		30		26		26		24		22		18		10		10		10		10		10																																																																																							
	Subtotal		76		66		52		48		48		42		32		28		24		22		22																																																																																							
Total	76		66		52		48		48		48		42		32		28		24		22		22																																																																																							

Note: Figures in ○ is repeatedly posted DRC train.

a) ... Passenger
b) ... Freight

* 80km/h(533~540km) ** 80km/h(633~661km)
50km/h(538~607km) 50km/h(661~678km)
55km/h(600~633km) 70km/h(678~691km)
80km/h(691~707km)
55km/h(707~723km)
80km/h(723~751km)

Appendix 3.3.1 (2) General Status of Train Operation

Northeastern Line

Distance from Bangkok	90 km		125 km		134 km		180 km		264 km		376 km		420 km		515 km		575 km		624 km	
	Bangkok Ban Phachi	Ban Phachi Kaeng Khoi	Ban Phachi Kaeng Khoi	Kaeng Khoi Mapkabao	Mapkabao Pak Chong	Mapkabao Pak Chong	Pak Chong Nakhon Ratchasima	Pak Chong Nakhon Ratchasima	Nakhon Ratchasima Buriam	Nakhon Ratchasima Buriam	Buriam Surin	Buriam Surin	Si-Sa Kat Unon Ratchasima	Si-Sa Kat Unon Ratchasima	Bua Yai J Khean	Bua Yai J Khean	Bua Yai J Khean	Bua Yai J Khean	Udon Thani Nong Khe	Udon Thani Nong Khe
Section length (km)	90	35	35	9	46	84	84	112	44	44	95	60	82	104	119	55				
Maximum speed (km/h)	70km/h(0.7 km) 80	80	80	50km/h (134.5 km) 70	*	*	*	80	80	80	80	80	80	80	80	80	80	80	80	
Maximum gradient (%)	less than 10%	"	"	"	24	14	14	10	8	8	less than 10%	"	less than 10%	8	less than 10%	8	less than 10%	8	less than 10%	
Effective length of track in the station (m)	500	500	500	500	450	500	500	500	500	500	500	500	500	500	500	500	500	500	500	
Hauling capacity (ton)	ALSTHOM	a) 720, 1280	"	560, 560	"	720, 1280	720, 1280	720, 1280	"	"	"	"	720, 1280	"	"	"	"	"	"	
	CE	600, 1200	"	480, 520	"	560, 960	560, 960	560, 960	"	"	"	"	560, 960	"	"	"	"	"	"	
	KAUPP	600, 1200	"	480, 520	"	560, 960	560, 960	560, 960	"	"	"	"	560, 960	"	"	"	"	"	"	
Passenger	Express train	4	4	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	
	Rapid train	8	8	8	8	8(2)	8(2)	4	4	4	4	4	4(2)	4	4	4	4	4	4	
	Ordinary train	6	6	6	6	6(2)	6(2)	14	14	14	10	10	8(2)	6	6	6	6	6	6	
	Commuter train	8	8	8	2	2	2													
	Subtotal	8	26	26	22	24	24	20	20	20	16	16	16	14	12	10	10	10	10	10
Mixed train		4	4	4	4(2)	4(2)	2	2	2	2	2	2	4(2)	2	2	2	2	2	2	
Every day operated train	26	28	28	18	10(2)	10(2)	6	6	6	6	4	4	4(2)	4	4	4	4	4	4	
As required train	6	6	6	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Sub total	32	34	34	22	14	14	10	10	10	10	8	8	8	8	8	8	8	8	8	
Total	58	64	64	48	42	42	32	32	32	28	28	26	26	22	18	12	12	12	12	

Note: Figures in () is repeatedly posted DRC train. () represents the roundabout train between Kaeng Khoi and Bua Yai j.
 a)... Passenger
 b)... Freight
 * 80km/h(179-195km)
 60km/h(195-206km)
 80km/h(206-264km)

Appendix 3.3.1 (3) General Status of Train Operation

Eastern Line

Distance from Bangkok		15 km	31 km	61 km	121 km	161 km	255 km	
Section		Bangkok ~ Hua Mak	Hua Mak ~ Hua Takhe	Hua Takhe ~ Chachoeng Sao	Chachoeng Sao ~ Prachin Buri	Prachin Buri ~ Kabin Buri	Kabin Buri ~ Aranya-pra-thet	
	Section length (km)	15	16	30	60	40	94	
Operating condition	Maximum speed (km/h)	80	80	80	70	70	60	
	Maximum gradient (%)	less than 10‰	"	"	"	"	"	
	Effective length of track in the station (m)	500	500	500	430	300	430	
	Hauling capacity (ton)	ALSTHOM	a) 360, b) 640	"	"	"	"	"
		GE	300, 600	"	"	"	"	"
		KRUPP	300, 600	"	"	"	"	"
Number of trains	Passenger	Express train						
		Rapid train						
		Ordinary train	⑥ 6	⑥ 6	⑥ 6	⑥ 6	⑥ 6	
		Commuter train	② 20	② 20	④ 14	⑥ 6	② 2	
		Subtotal	② 26	② 26	② 20	② 12	⑧ 8	
	Mixed train	2	2	2	2	2		
	Freight	Every day operated train	2					
		As required train						
		Subtotal	2					
	Total		30	28	22	14	10	8

Note: Figures in ○ is repeatedly posted DRC train.

a)... Passenger

b)... Freight

Appendix 3.3.1 (4) General Status of Train Operation

Southern Line

Distance from Bangkok	22 Km		64 Km		80 Km		203 Km		229 Km		234 Km		485 Km		651 Km		773 Km		862 Km		945 Km		1,055 Km		1,159 Km			
	Bangkok Taling Chan J	Nakhon Pathom Pladuk	Nakhon Pathom Pladuk	Bancha-Am Hua Hin	Bancha-Am Hua Hin	Nong Pladuk	Bancha-Am Hua Hin	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	Pran Buri Chumphon	
Section length (km)	22	42	38	123	26	80	251	5	70	166	122	89	83	110	104													
Maximum speed (km/h)	70	80	80	80	65km/h (21.2-25.5km/h)	70	70	70	70	70	70	50km/h (7.67-7.70km/h)	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
Maximum gradient (%)	less than 10%	"	"	"	"	"	10	"	less than 10%	less than 10%	"	18	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Effective length of track in the station	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	
Hauling capacity (ton)	a) 720, 1200 b) 620, 1200	"	"	"	"	"	720, 1280	"	720, 1280	720, 1280	720, 1280	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	600, 600	
Operating condition	Express train	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
	Rapid train	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Ordinary train	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	Commuter train	12	12	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	Subtotal	18	34	30	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mixed train		6	6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of trains	Every day operated train	16	12	12	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	As required train	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
	Sub total	22	18	18	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
Total	40	58	54	33	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	

Note: Figures in () is repeatedly posted DRC train.

a)... Passenger
b)... Freight

Appendix 3.3.2 (1) Table of Train Operation Chart (Northern Line)

(): Number of trains starting at Bangkok, inbound, one way
 []: Number of trains starting at Mae Nam, inbound, one way

Distance from Bangkok km	Station											Total					
	Bangkok	Bang Sue 7km	Don Muang 22	Ban Phachi 90	Lop Buri 133	Ban Mo 109	Phan Thong 188	Nakhon Sawan 246	Taphan Hin 319	Bang Mra 381	Phitsanu Lok 389		Sila At 488	Den chai 534	Nakhon Lampang 642	Chiang Mai 751	
Express (1)														7	1	1	
Rapid (3)														37,57	2	3	
Ordinary (7)																	
Commuter (8)																	
Mixed																2	
Freight (every day) [2]																	8
Freight (as required) [4]																	8
Total (19) [6]	38	33	30	30	26	24	24	24	21	16	14	12	11			44	

Appendix 3.3.2 (2) Table of Train Operation Chart (Northeastern Line)

(): Number of trains starting at Bangkok, inbound, one way.
 []: Number of trains starting at Mae Nam, inbound, one way

Distance from Bangkok Km	Kind of train	Station										Total						
		Bangkok (0)	Bang Sue (7)	Pan Phachi (90)	Sara Buri (113)	Kaeng Khoi (125)	Hapkabao (133)	Pack Chong (180)	Nakhon Ratchasima 264	Surin (420)	Si-Saket (515)		Ubon Ratchathani (575)	Nakhon Ratchasima (264)	Buayai J (346)	Khon Keam (450)	Udon Thani (569)	Nong Khai (624)
Express (2)									1		1					3	1	2
Rapid (4)									31.39		2					29.33	2	4
Ordinary (3)									61.63.65		3					73.75	2	14
									85.79		1					81	1	
Commuter (4)									83		1					111	1	4
											1					111	1	
Mixed																		4
																		4
Freight (every day)																		
Freight as required																		7
																		7
Total (13)																		49
[3]																		49

Note: () represents the roundabout train between Kacng Khoi and Bua Yai J.

Appendix 3.3.2 (4) Table of Train Operation Chart (Southern Line)

(): Number of trains starting at Bangkok, inbound, one way

Distance from Bangkok Km	Station															Total						
	Bangkok	Bang Sue	Thon Buri	Taling Chan	Nakhon Pathom	Nong Pladuk	Kaeburi	Ban Qa-am	Huahn	Pram Buri	Prachap Khiri Khan	Chumphon	Surat Thani	Ban Song	Thung Song		Hattahung	Hat Yai	Wat Khiam	Yala	Sungai Kolok	
Express	(2)																11	1	19	15	1	3
Rapid	(3)																43	1		45	1	4
Ordinary	(4)																119	1	123	133	1	12
Commuter																				143	1	6
Mixed																				127	2	7
Freight (every day)																				131	1	12
Freight (as required)																				481	1	5
Total	(9)	20	29	27	18	15	15	15	16	13	15	11	11	15	11	10	49					

Appendix 3.3.3 Train Kilometers per Day by Line (1982 Year)

(km per day)

Line Kind of train	Northern	Northeastern	Southern	Eastern	Total	Remarks
Express	1,889	2,072	4,147	—	8,108	
Rapid	3,347	4,134	9,199	—	16,680	
Ordinary	8,922	4,731	4,379	—	18,032	
Commuter	2,696	3,663	2,923	2,554	11,836	
Total	16,854	14,600	20,648	2,554	54,656	
Mixed train	1,858	2,050	4,225	510	8,643	
Freight train	7,550	3,576	8,286	145	19,557	
Other train	75	116	205	36	432	
Total	26,337	20,342	33,364	3,245	83,288	

Appendix 3.3.4 Monthly Number of Passengers by Each Line (Average per Day)
 (Total number of boarding passengers at stations with more than 1,000 passengers per day.)

Line	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Annual average
Northern Line (28 stations)	(96) 67,977	(81) 57,019	(75) 55,039	(98) 69,828	(123) 87,004	(125) 88,177	(136) 96,177	(102) 72,165	(83) 58,523	(90) 63,559	(95) 66,957	(93) 65,927	(100) 70,746
Northeastern Line (7 stations)	(95) 12,110	(95) 12,154	(86) 10,996	(104) 13,292	(106) 13,521	(124) 15,852	(120) 15,328	(108) 13,803	(93) 11,859	(98) 12,544	(88) 11,265	(80) 10,179	(100) 12,744
Southern Line (14 stations)	(118) 30,713	(85) 22,271	(81) 21,070	(88) 22,863	(105) 27,358	(107) 27,793	(117) 30,547	(118) 30,715	(85) 22,207	(90) 23,551	(95) 24,660	(112) 29,108	(100) 26,071
Eastern Line (5 stations)	(81) 5,541	(93) 6,415	(87) 5,983	(108) 7,396	(110) 7,580	(112) 7,667	(99) 6,821	(83) 5,706	(108) 7,378	(110) 7,556	(106) 7,300	(103) 7,093	(100) 6,869
Index average	(97.5)	(88.5)	(83.0)	(99.5)	(110.0)	(117.0)	(118.0)	(102.5)	(92.3)	(97.0)	(96.0)	(97.0)	(100)

Note: () is an index when mean value is 100.

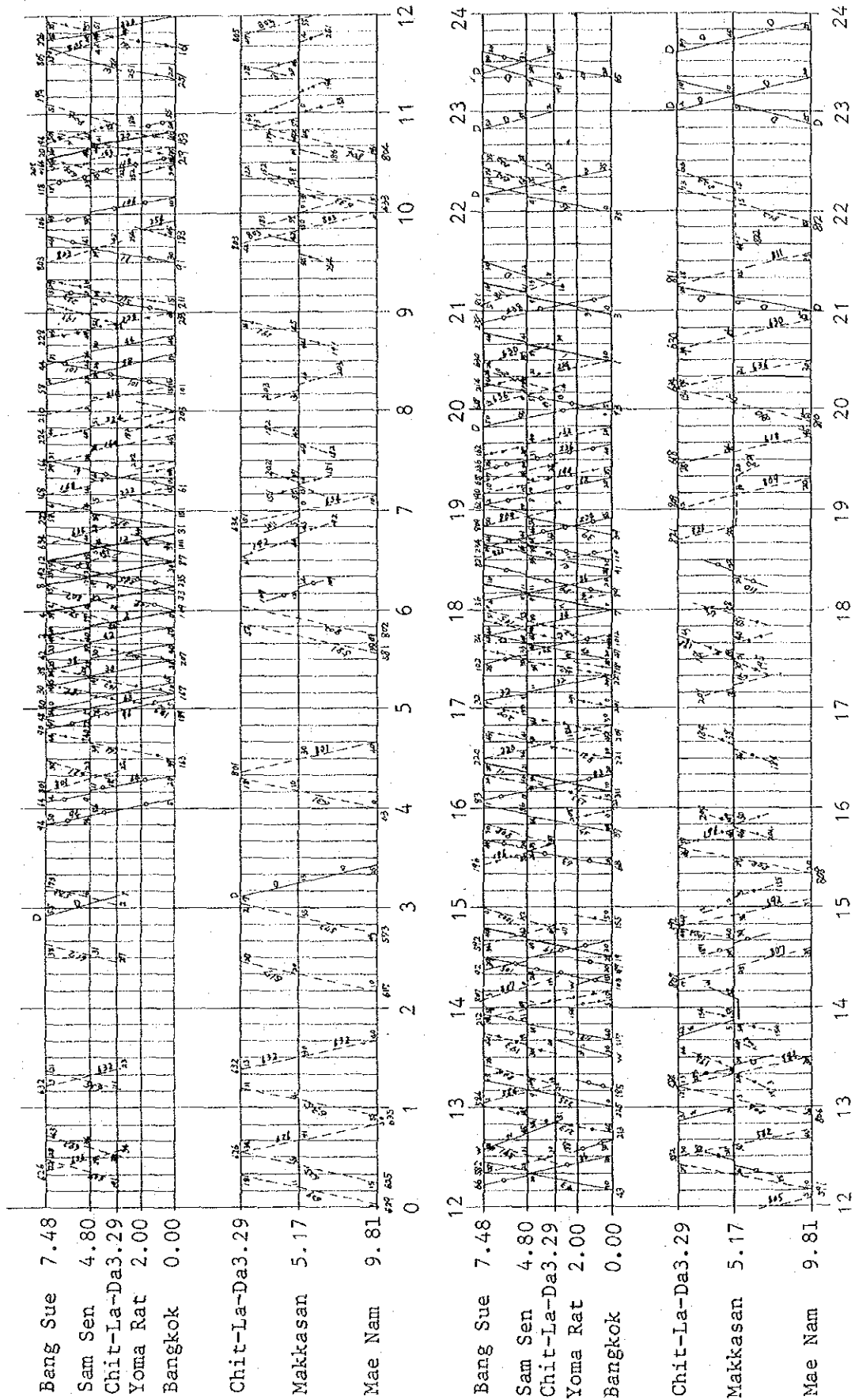
Appendix 3.3.5 Train Running Speed by Kind of Train and by Line

Line	Kind of train	Train No.	Operating section	Section length (km)	Traveling time	Schedule speed (km/h)	Remarks	
Northern Line	Passenger train	7	Bangkok ~ Chiang Mai	751	13:50	54.3	(13B ~ 11B)	
		37	Bangkok ~ Chaing Mai	751	14:35	51.5	(17B ~ 12B)	
		87	Bangkok ~ Sila At	488	10:40	45.7	(14B)	
		163D	Bangkok ~ Lop Buri	133	2:55	45.6	(10B)	
	Mixed train	189D	Bangkok ~ Don Muang	22	0:40	33.0	(4B)	
		463	Bang Sue ~ Phitsanulok	382	13:55	27.5	(2B + 880ton)	
	Freight train	611	Bang Sue ~ Chaing Mai	744	27:00	27.6	(1,200 ton)	
		605	Bang Sue ~ Taphanhin	312	10:15	30.4	(1,200 ton)	
	Northeastern Line	As required	621	Bang Sue ~ Ban Mo	101	3:05	32.8	(1,280 ton)
			1	Bangkok ~ Ubon Ratchathani	575	10:25	55.2	(15B)
Express		3	Bangkok ~ Nong Khai	624	11:10	55.9	(14B)	
		31	Bangkok ~ Ubon Ratchathani	575	10:45	53.5	(14B)	
Rapid		33	Bangkok ~ Nong Khai	624	11:20	55.1	(9B ~ 7B)	
		61	Bangkok ~ Ubon Ratchathani	575	12:40	45.3	(8B)	
Ordinary		213D	Bangkok ~ Pak Chong	180	3:45	48.0	(4B)	
		207D	Bangkok ~ Kaeng Khoi	125	2:20	53.7	(4B)	
Mixed train		281	Ban Phachi ~ Bua Yai J.	256	7:45	33.0	(3B + 720ton)	
		501	Bang Sue ~ Ubon Ratchathani	568	21:40	26.2	(1,200 ton)	
Passenger train	Every day	531	Bang Sue ~ Map Kabao	127	2:40	47.6	(1,200 ton)	
		591	Mae Nam ~ Nakhon Ratchasima	269	9:30	28.3	(1,200 ton)	
Southern Line	As required	19	Bangkok ~ Yala	1,055	20:10	52.3	(16B ~ 11B)	
		43	Bangkok ~ Hat Yai	945	18:55	49.9	(16B)	
	Rapid	169	Thon Buri ~ Chum Phon	469	10:05	46.5	(6B)	
		173D	Thon Buri ~ Ratcha Buri	101	2:15	44.9	(6B)	
	Commuter	177D	Thon Buri ~ Nakhon Pathom	48	1:10	41.1	(2B)	
		355	Thon Buri ~ Prachuap Khirikhan	302	11:40	25.9	(3B + 540ton)	
	Mixed train	741	Bang Sue ~ Hat Yai	938	29:05	32.2	(1,280 ton)	
		833	Bang Sue ~ Thon Buri	21	0:50	24.2	(1,200 ~ 1,280ton)	
	Freight train	Every day	717	Bang Sue ~ Ban Cha-Am	196	5:40	34.6	(1,200 ton)
			187D	Bangkok ~ Aranyaprathet	255	5:15	48.6	(4B)
Passenger train	Ordinary	151D	Bangkok ~ Chachoeng Sao	61	1:28	41.6	(2B)	
		192D	Makkasan ~ Hua Takhe	26	0:50	31.2	(2B ~ 4B)	
Mixed train	Commuter	251	Bangkok ~ Aranyaprathet	255	6:20	40.3	(5B + 200ton)	
		821	Bang Sue ~ Hua Mak	18	1:45	10.3	(600 ~ 640ton)	
Freight train	As required	801	Bang Sue ~ Mae Nam	12	0:30	24.0	(1,200 ~ 1,280ton)	

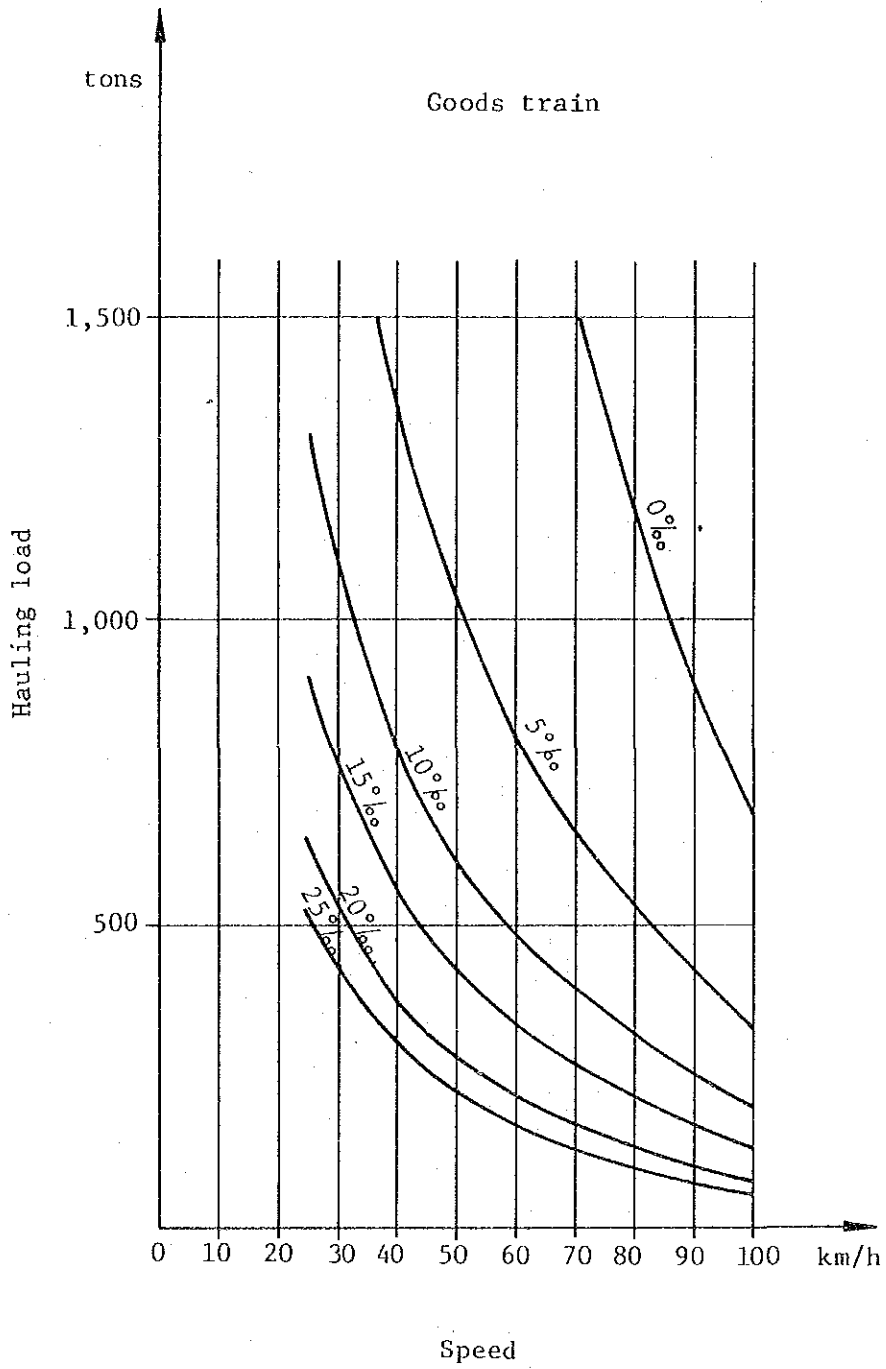
Note: B is Bogie car D is Diesel railcar train

Appendix 3.3.6 Train Diagram in the Proposed Elevated Section (as of 1983)

- Legend
- Express train
 - Rapid train
 - Ordinary train
 - Commuter train
 - Freight train
 - Locomotive train

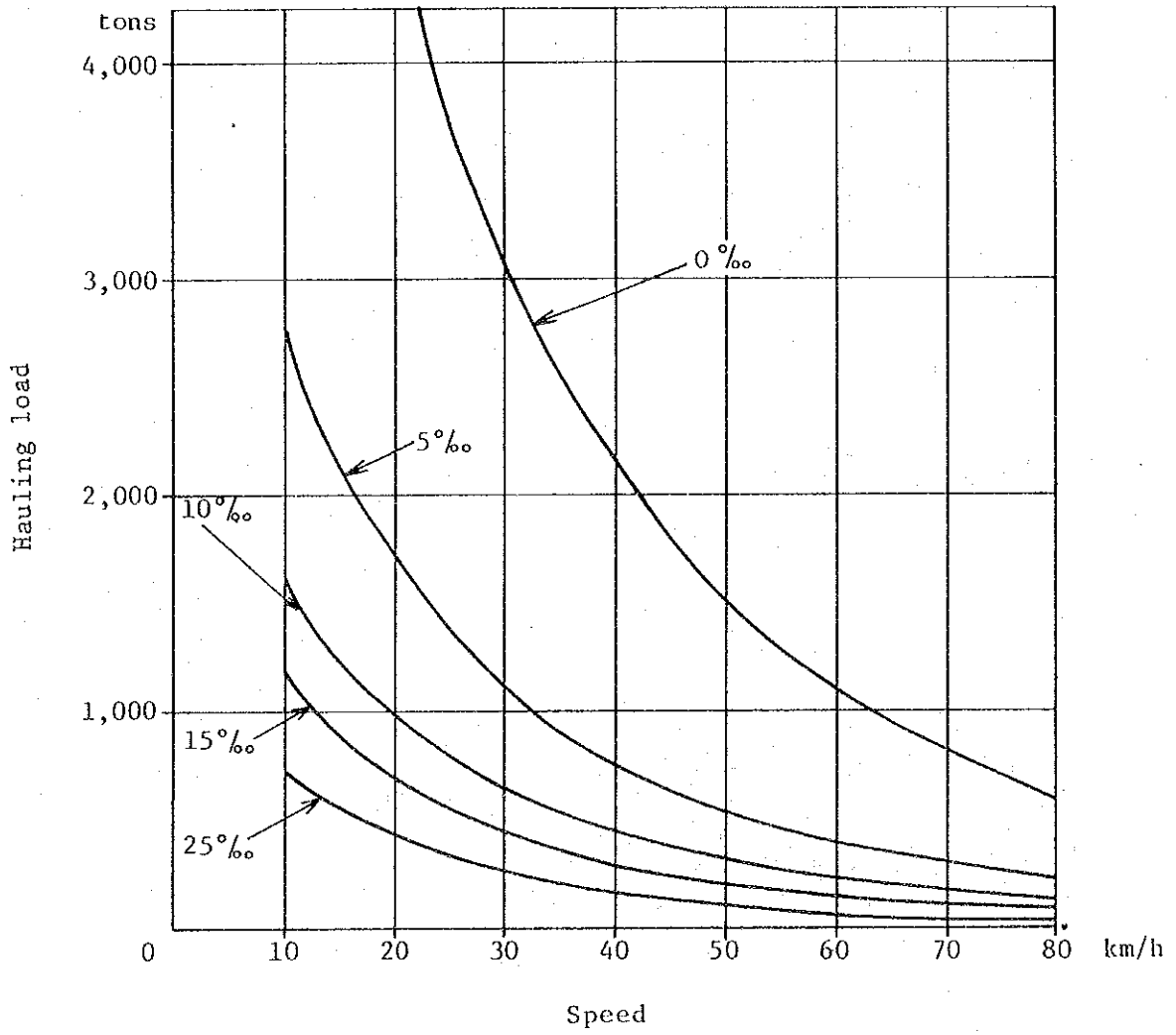


Appendix 3.3.7 (1) Diesel Locomotive Load Curves (ALSTHOM)

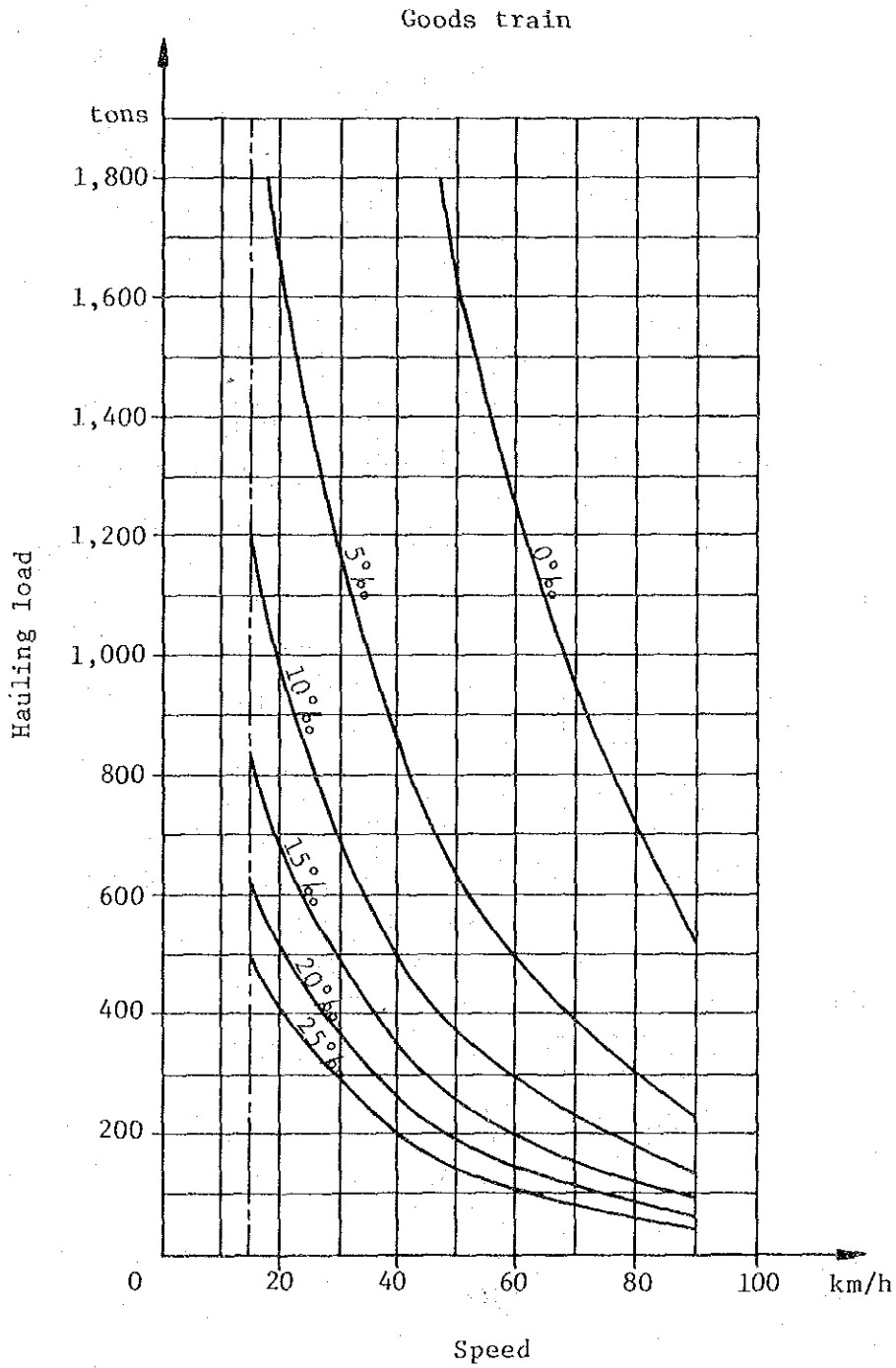


Appendix 3.3.7 (2) Diesel Locomotive Load Curves (G E)

Goods train



Appendix 3.3.7 (3) Diesel Locomotive Load Curves (KRUPP)



Appendix 4.3.1 (1) O.D. Table of Inter-zonal Passenger Traffic (1984)

Unit: 1,000 persons

O/D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	
1																					
2	416.0																				
3	116.5	83.1																			
4	546.2	160.8	195.3																		
5	564.7	29.7	14.6	101.2																	
6	1,650.7	189.5	97.5	963.5	730.8																
7	930.7	0.1	0.1	0.3	0.4	0.2															
8																					
9	644.7	2.3	0.7	0.5	2.5	0.2	473.6														
10	2,497.0	0.4	0.4	1.5	1.9	2.4	27.3	1,696.2													
11	265.0	0.2	0.1	0.2	0.2	4.4			0.2	0.1											
12	661.1	28.3	12.7	61.1	486.2	323.6	54.3	146.4	146.4	1.3	1.3										
13	2,983.2	12.7	0.7	25.0	49.7	114.8	72.9	247.5	208.9	0.4	890.2										
14	1,325.2					0.4			0.1		147.4	0.5	0.3								
15	2,543.6	0.4	0.1	0.4	0.2	0.8			0.3	0.8	0.2	0.1	1.0	0.3							
16																					
17	544.1	0.1		0.2	0.9	0.4	0.2		1.2	0.4	253.2	2.5	0.7	0.1	1.9						
18	1,319.2	0.1		0.2	0.1	0.2	0.1		0.2	0.2	53.0	0.2			0.1		512.8				
19	1,296.1	0.4	0.1	0.1		0.1	0.2		0.4		43.7	0.2	0.1		0.1		206.6	953.1			
Total	18,304.0	508.1	322.3	1,154.2	1,272.9	447.5	633.6		2,092.5	211.7	499.2	893.7	2.1	0.4	2.1		719.4	953.1			28,016.8

Appendix 4.3.1 (2) O.D. Table of Inter-zonal Passenger Traffic (1991)

Unit: 1,000 persons

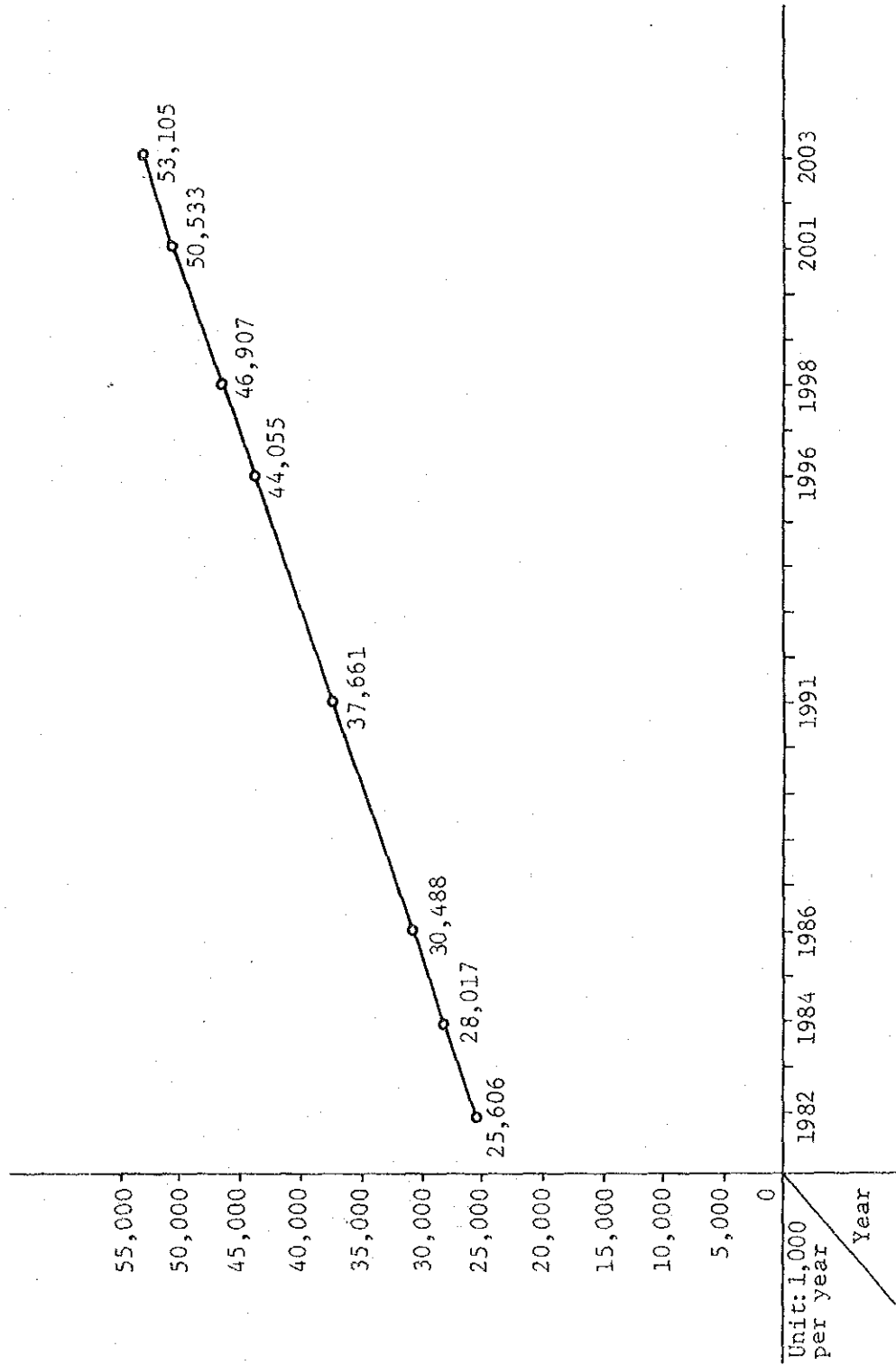
O	D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total		
1																							
2	537.2																						
3	150.5	111.6																					
4	704.5	216.1	262.4																				
5	767.6	39.9	19.6	136.0																			
6	2131.8	254.6	131.0	1294.7	982.1																		
7	1224.3	0.1	0.1	0.4	0.6	0.3																	
8																							
9	847.9	3.1	0.9	0.7	3.4	2.9	636.4																
10	3285.2	0.6	0.6	2.1	2.5	3.2	36.6	2279.4															
11	326.8	0.3	0.1	0.3	0.3	5.9		0.3	0.1														
12	894.7	38.1	17.1	82.1	653.3	434.9	73.0	196.8	1.8	1.8													
13	4036.8	17.1	8.8	33.5	66.8	154.3	104.7	332.5	280.8	0.6	196.4												
14	1792.9					0.6		0.1		198.1	0.7	0.4											
15	3742.3	0.6	0.1	0.6	0.3	1.0		0.4	1.0	0.3	0.1	1.3	0.4										
16																							
17	715.6	0.1		0.3	1.2	0.6	0.3	1.6	0.6	340.2	3.4	0.9	0.1	2.5									
18	1735.0	0.1		0.3	0.1	0.3	0.1	0.3	0.3	71.2	0.3			0.1							689.1		
19	1704.6	0.6	0.1	0.1	0.1	0.1	0.3	0.6		58.7	0.3	0.1	0.1	0.1							277.7	280.8	
Total	24597.7	682.9	440.8	1551.1	1710.6	604.1	831.4	2812.0	284.6	670.9	1201.2	2.7	0.5	2.7	0.5	2.7					966.8	280.8	37660.8

Appendix 4.3.1 (3) O.D. Table of Inter-zonal Passenger Traffic (2003)

Unit: 1,000 persons

O	D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	
1																						
2		724.4																				
3		202.9	157.4																			
4		950.2	304.7	370.0																		
5		1,034.8	56.2	27.6	191.8																	
6		2,875.1	359.0	184.8	1,825.7	1,384.8																
7		1,654.2	0.2	0.2	0.6	0.8	0.4															
8																						
9		1,145.7	4.4	1.2	1.4	4.8	4.1	897.4														
10		4,438.4	0.8	0.8	2.9	3.5	4.6	51.6	3,214.2													
11		427.2	0.4	0.2	0.4	0.4	8.3		0.4	0.2												
12		1,215.2	53.7	24.1	115.7	921.2	613.3	102.9	277.5	2.5	2.5											
13		5,484.3	24.1	12.4	47.3	94.2	217.6	147.7	468.9	395.9	0.8	1,686.9										
14		2,436.6					0.8			0.2	279.4	1.0	0.6									
15		6,469.9	0.8	0.2	0.8	0.4	1.5		0.6	1.5	0.4	0.2	1.9	0.6								
16																						
17		968.5	0.2		0.4	1.7	0.8	0.4	2.3	0.8	479.7	4.8	1.2	0.2	3.5							
18		2,349.3	0.2		0.4	0.2	0.4	0.2	0.4	0.4	100.4	0.4			0.2	971.6						
19		2,307.6	0.8	0.2	0.2		0.2	0.4	0.8		82.7	0.4	0.2	0.2	0.2	391.6	1,806.0					
Total		34,684.3	962.9	621.7	2,187.6	2,412.0	852.0	1,200.6	3,965.3	401.3	945.9	1,693.7	3.9	0.8	3.9	1,363.2	1,806.0					53,105.1

Appendix 4.3.1 (4) Inter-zonal Passenger Traffic Volume (Figure)



Appendix 4.3.2 (1) O.D. Table of Urban Passenger Traffic (1984)

Unit: 1,000 persons

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
No. Code	1001	1004	1007	1011	1013	1015	1017	1020	1022	3001	3010	3012	3014	3015	3017	4552	4003	4004	4005	4007	4008	4008	4009
1	1001																						
2	1004	152.8																					
3	1007	810.4	69.9																				
4	1011	376.2	54.1	205.9																			
5	1013	68.4	30.1	5.5	1.6																		
6	1015	235.2	11.6	157.4	14.3	0.7																	
7	1017	428.0	84.7	133.5	41.0	5.7	18.5																
8	1020	62.0	38.2	39.2	28.4	1.9	17.6	118.6															
9	1022	63.9	24.4	57.4	51.3	1.7	10.6	120.4	222.0														
10	3001	58.5	2.0	88.5	16.3	2.1	7.7	112.6	0.0	4.4													
11	3009	99.2	2.0	8.0	3.5	0.6	1.7	3.1	0.0	1.1	20.2												
12	3010	90.2	0.8	1.5	0.7	0.3	0.5	0.6	2.0	2.1	74.5	31.4											
13	3012	12.5	0.4	0.5	0.2	0.3	0.3	0.2	1.4	1.5	30.5	24.3	8.6										
14	3014	83.9	4.1	3.8	1.6	0.2	1.0	0.7	0.6	0.6	149.8	63.5	3.8	2.0									
15	3015	441.3	15.7	26.4	24.3	0.6	6.3	263.2	0.6	0.6	420.4	259.5	40.8	17.2	10.2								
16	3017	20.7	0.2	0.1	0.1	0.0	0.0	0.8	0.2	0.3	33.3	23.3	2.8	1.1	5.0	78.0							
17	4002	0.0	0.5	0.0	0.4	0.1	0.1	0.4	1.0	1.2	0.1	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18	4003	4.4	0.6	0.4	0.4	0.1	0.2	0.4	1.1	1.3	0.1	0.0	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19	4004	2.7	0.5	2.7	0.0	0.1	0.1	0.3	0.9	1.1	0.1	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20	4005	0.1	0.1	0.6	0.2	0.1	0.1	0.2	0.7	0.8	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	4007	0.4	0.0	0.1	0.3	0.1	0.1	0.3	0.9	1.0	0.1	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22	4008	1.3	0.4	1.1	0.4	0.1	0.1	0.3	0.9	1.0	0.1	0.2	0.3	0.3	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23	4009	5.0	1.7	2.4																			
Total	3017.1	392.0	735.0	185.0	14.7	64.9	622.1	232.3	17.0	729.2	402.8	57.7	22.0	16.2	78.6	0.5	876.9	38.6	19.4	0.9	31.0	29.7	7,583.6

Appendix 4.3.2 (2) O.D. Table of Urban Passenger Traffic for Case I (1991)

Unit: 1,000 persons

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
No. Code	1001	1004	1007	1011	1013	1015	1017	1020	1022	3001	3009	3010	3012	3014	3015	3017	4002	4003	4004	4005	4007	4008	4009
1	1001																						
2	1004	184.4																					
3	1007	978.0	84.4																				
4	1011	454.0	65.3	248.5																			
5	1013	82.6	36.3	6.6	1.9																		
6	1015	283.8	74.3	189.9	17.2	0.8																	
7	1017	516.5	102.2	161.1	49.4	6.8	22.4																
8	1020	71.8	44.2	45.4	32.9	2.2	20.4	137.3															
9	1022	74.0	28.2	66.5	59.4	2.0	12.3	139.4	246.7														
10	3001	70.6	2.4	106.8	19.6	2.6	9.8	135.9	0.0	5.0													
11	3009	119.7	2.4	9.7	4.2	0.7	2.1	3.8	0.0	1.2	24.4												
12	3010	108.9	0.9	1.9	0.8	0.4	0.7	0.7	2.4	2.4	89.9	37.9											
13	3012	15.1	0.5	0.6	0.2	0.3	0.2	1.6	1.7	36.8	29.3	10.4											
14	3014	101.3	4.9	4.6	1.9	0.2	1.2	0.9	0.6	0.7	180.7	76.7	4.5	2.4									
15	3015	532.6	18.9	31.8	29.3	0.7	7.6	317.6	0.7	507.4	313.1	49.2	20.8	12.3									
16	3017	25.0	0.2	0.1	0.1	0.0	0.1	0.9	0.3	0.3	40.2	28.2	3.4	6.1	94.1								
17	4002	0.0	0.6	0.0	0.4	0.2	0.2	0.4	1.1	1.3	0.1	0.2	0.4	0.3	0.2	0.1							
18	4003	5.4	0.7	0.4	0.5	0.2	0.2	0.5	1.3	1.5	0.1	0.2	0.4	0.4	0.2	0.1	31.2						
19	4004	3.2	0.6	3.3	0.0	0.2	0.2	0.4	1.1	1.3	0.1	0.2	0.4	0.3	0.1	0.1	69.8	1.7					
20	4005	0.1	0.1	0.7	0.3	0.1	0.1	0.3	0.8	0.9	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.5				
21	4007	0.5	0.0	0.1	0.4	0.1	0.2	0.4	1.0	1.2	0.1	0.2	0.3	0.3	0.1	0.1	128.4	6.2	1.3	0.0			
22	4008	1.5	1.5	1.3	0.5	0.2	0.2	0.4	1.0	1.1	0.1	0.2	0.4	0.3	0.6	0.1	401.1	26.2	8.8	0.8	11.6		
23	4009	5.7	1.9	2.8													405.1	11.9	12.3	0.2	24.5	34.0	
Total	3634.7	469.5	882.1	219.0	17.7	77.5	739.0	258.6	19.3	880.0	486.3	69.6	26.3	19.7	94.9	0.5	1035.6	46.0	22.9	1.0	36.1	34.0	3070.3

Appendix 4.3.2 (3) O.D. Table of Urban Passenger Traffic for Case II (1991)

Unit: 1,000 persons

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
No. Code	1001	1004	1007	1011	1013	1015	1017	1020	1022	3001	3009	3010	3012	3014	3015	3017	4002	4003	4004	4005	4007	4008	4009	
1	1001																							
2	1004	382.1																						
3	1007	2,083.6	205.3																					
4	1011	766.6	125.1	514.8																				
5	1013	139.7	65.7	13.0	4.5																			
6	1015	655.2	131.9	363.9	38.9	2.0																		
7	1017	955.0	170.6	273.6	99.2	14.1	50.5																	
8	1020	111.2	72.9	77.9	63.1	4.3	43.2	334.1																
9	1022	107.5	42.3	103.5	99.2	3.4	21.9	267.1	485.7															
10	3001	162.0	5.2	209.0	34.9	4.6	16.0	218.1	0.0	7.2														
11	3009	326.6	4.6	17.5	7.0	1.1	3.3	5.9	0.0	1.7	75.1													
12	3010	235.4	1.6	3.1	1.3	0.6	1.0	1.1	3.4	3.3	226.0	109.0												
13	3012	26.2	0.8	1.0	0.3	0.5	0.4	0.3	2.3	2.3	83.6	73.5	29.1											
14	3014	167.5	7.3	6.7	2.7	0.3	1.7	1.2	0.9	0.9	366.2	167.0	10.6	6.7										
15	3015	826.2	27.3	45.0	40.3	0.9	10.4	422.3	0.9	0.9	935.8	610.9	107.1	52.1	35.2									
16	3017	37.6	0.3	0.1	0.2	0.1	0.1	1.2	0.4	0.4	69.8	51.1	6.3	2.8	14.4	251.9								
17	4002	0.0	0.9	0.0	0.6	0.2	0.2	0.6	1.5	1.8	0.2	0.3	0.5	0.5	0.2	0.2	0.1							
18	4003	8.4	1.1	0.6	0.7	0.3	0.3	0.7	1.8	2.0	0.2	0.3	0.6	0.5	0.2	0.3	0.1	88.9						
19	4004	5.7	1.0	5.2	0.0	0.2	0.2	0.6	1.5	1.7	0.1	0.3	0.5	0.5	0.2	0.2	0.1	175.4	5.3					
20	4005	0.2	0.1	1.1	0.4	0.2	0.1	0.4	1.1	1.2	0.1	0.2	0.4	0.3	0.1	0.2	0.1	9.4	0.0	1.4				
21	4007	0.8	0.0	0.1	0.6	0.2	0.2	0.6	1.5	1.6	0.2	0.3	0.5	0.2	0.2	0.1	305.7	17.7	3.8	0.0				
22	4008	2.5	0.7	1.9	0.7	0.2	0.2	0.6	1.4	1.5	0.2	0.3	0.6	0.5	1.1	0.2	0.1	942.2	62.3	23.4	1.7	33.2		
23	4009	5.7	1.9	2.8														405.1	11.9	12.3	0.2	24.5	34.0	
Total	7,005.7	866.6	1,640.8	394.6	33.2	149.7	1,254.8	502.4	26.5	1,757.5	1,013.2	156.2	64.4	51.6	253.2	0.6	1,926.7	97.2	40.9	1.9	57.7	34.0	17,329.4	

Appendix 4.3.2 (4) O.D. Table of Urban Passenger Traffic for Case I (2003)

Unit: 1,000 persons

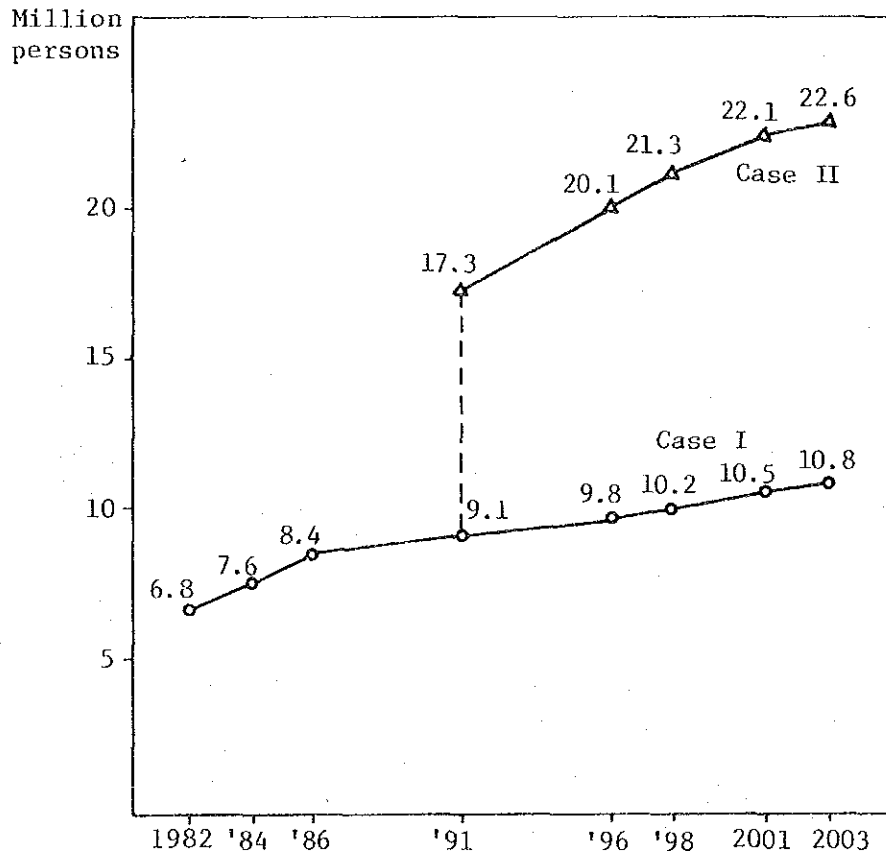
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
No. Code	1001	1004	1007	1011	1013	1015	1017	1020	1022	3001	3009	3010	3012	3014	3015	3017	4002	4003	4004	4005	4007	4008	4009	
1	1001																							
2	1004	221.2																						
3	1007	1,173.2	101.9																					
4	1011	544.6	78.9	300.0																				
5	1013	99.1	43.8	7.9	2.3																			
6	1015	340.4	89.8	229.3	20.8	1.0																		
7	1017	617.6	123.4	194.6	59.7	8.2	27.0																	
8	1020	80.9	50.1	51.4	37.3	2.5	23.1	155.6																
9	1022	83.3	32.0	75.4	67.3	2.3	14.0	158.0	252.2															
10	3001	84.7	2.9	128.9	23.7	3.1	11.1	164.1	0.0	5.1														
11	3009	143.5	2.9	11.7	5.1	0.8	2.5	4.6	0.0	1.4	29.4													
12	3010	130.6	1.1	2.2	1.0	0.4	0.8	0.9	2.7	2.7	108.6	45.8												
13	3012	18.1	0.6	0.8	0.3	0.4	0.4	0.3	1.9	2.0	44.4	12.6												
14	3014	121.5	5.9	5.6	2.3	0.2	1.5	1.0	0.7	0.8	218.3	92.6	5.5	2.9										
15	3015	638.9	22.8	38.4	35.4	0.8	9.2	383.5	0.8	0.8	612.7	378.2	59.4	25.1	14.8									
16	3017	30.0	0.3	0.1	0.2	0.1	0.1	1.1	0.3	0.3	48.5	34.0	4.1	1.6	7.3	113.7								
17	4002	0.0	0.7	0.0	0.5	0.2	0.2	0.5	1.3	1.5	0.1	0.2	0.5	0.4	0.2	0.2	0.1							
18	4003	6.4	0.8	0.5	0.6	0.2	0.2	0.6	1.5	1.7	0.1	0.2	0.5	0.5	0.2	0.2	0.1	37.7						
19	4004	3.8	0.7	4.0	0.0	0.2	0.2	0.5	1.2	1.4	0.1	0.2	0.4	0.4	0.2	0.2	0.1	84.3	2.1					
20	4005	0.2	0.1	0.8	0.3	0.1	0.1	0.3	0.9	1.0	0.1	0.1	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.6				
21	4007	0.5	0.0	0.1	0.5	0.2	0.2	0.5	1.2	1.4	0.1	0.2	0.4	0.4	0.2	0.2	0.1	155.0	7.5	1.5	0.0			
22	4008	1.8	0.6	1.5	0.6	1.2	0.2	0.5	1.2	1.3	0.1	0.2	0.5	0.4	0.7	0.2	0.1	484.4	31.6	10.6	1.0	14.0		
23	4009	6.5	2.2	3.2														458.2	13.5	13.9	0.2	27.7	38.4	
Total		4,348.8	561.5	1,056.4	257.9	20.9	90.8	872.0	276.0	22.0	1,062.5	587.1	84.2	32.0	23.7	114.8	0.6	1,219.6	56.7	26.6	1.2	41.7	38.4	10,793.4

Appendix 4.3.2 (5) O.D. Table of Urban Passenger Traffic for Case II (2003)

Unit: 1,000 persons

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
No. Code	1001	1004	1007	1011	1013	1015	1017	1020	1022	3001	3009	3010	3012	3014	3015	3017	4002	4003	4004	4005	4007	4008	4009
1	1001																						
2	1004	509.5																					
3	1007	2,698.3	281.0																				
4	1011	989.3	165.8	691.0																			
5	1013	179.6	86.3	17.2	6.2																		
6	1015	816.1	172.7	482.2	53.0	2.7																	
7	1017	1,184.1	221.3	355.8	132.5	19.0	68.7																
8	1020	132.4	88.2	95.3	78.5	5.4	54.6	432.5															
9	1022	136.9	50.7	124.7	120.8	4.1	26.9	332.2	569.4														
10	3001	223.6	7.1	283.5	46.5	6.0	21.1	284.9	0.0	8.7													
11	3009	422.6	6.3	23.3	9.2	1.5	4.4	7.7	0.0	2.1	113.8												
12	3010	305.4	2.2	4.1	1.7	0.7	1.3	1.4	4.1	3.9	328.7	163.9											
13	3012	34.4	1.0	1.3	0.4	0.6	0.6	0.4	2.7	2.7	118.0	106.0	45.8										
14	3014	217.6	9.4	8.6	3.4	0.4	2.1	1.5	1.0	1.0	504.1	233.4	15.8	10.5									
15	3015	1,065.4	35.0	57.5	51.3	1.2	13.2	533.8	1.0	1.0	1,269.1	838.5	149.8	75.2	52.9								
16	3017	48.0	0.4	0.2	0.2	0.1	0.1	1.5	0.4	0.4	93.1	68.7	8.9	4.0	20.6	371.9							
17	4002	0.0	1.1	0.0	0.8	0.3	0.3	0.7	1.8	2.1	0.2	0.3	0.7	0.6	0.3	0.3	0.1						
18	4003	10.8	1.4	0.8	0.9	0.3	0.4	0.8	2.1	2.4	0.2	0.4	0.8	0.7	0.3	0.3	0.2	24.3					
19	4004	7.4	1.3	6.8	0.0	0.3	0.3	0.7	1.8	2.0	0.2	0.4	0.7	0.6	0.3	0.3	0.1	255.1	8.1				
20	4005	11.2	0.2	1.5	0.6	0.2	0.2	0.5	1.3	1.5	0.1	0.2	0.5	0.4	0.2	0.2	0.1	0.0	0.0	2.2			
21	4007	1.0	0.0	0.2	0.8	0.3	0.3	0.7	1.8	1.9	0.2	0.3	0.7	0.6	0.3	0.3	0.1	435.8	26.3	6.1	0.0		
22	4008	125.0	0.9	2.5	0.9	0.3	0.3	0.7	1.7	1.7	0.2	0.4	0.7	0.6	1.4	0.3	0.1	1,166.7	89.5	34.3	2.3	49.9	
23	4009	6.5	2.2	3.2														458.2	13.5	0.2	27.7	38.4	
Total	9,115.1	1,134.5	2,159.7	507.7	43.4	194.8	1,600.0	589.1	31.4	2,427.9	1,412.5	224.4	93.2	76.3	373.6	0.7	2,339.5	137.4	56.5	2.5	77.6	38.4	22,636.2

Appendix 4.3.2 (6) Urban Passenger Traffic Volume (Figure)



Appendix 4.3.3 (1) O.D. Table of Inter-zonal Freight Traffic (1984)

Unit: 1,000 persons

O	D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
1	180.0	108.5	95.5	92.1	166.8	202.8	46.8	223.9	69.3	1.2	250.1	0.5	9.4	21.2	216.3	336.6	2021.0				
2	73.8	0.1	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.8	32.2	0.1	0.0	0.5	4.1	6.4	119.1				
3	2.5	0.6	2.2	0.2	2.0	0.2	0.2	0.5	1.2	0.3	10.0	0.1	0.0	0.6	6.1	2.7	29.4				
4	73.5	2.7	0.8	0.1	1.4	0.1	0.2	0.4	2.2	0.4	44.1	1.9	0.5	2.0	18.2	62.1	210.6				
5	79.1	23.9	0.4	5.1	5.9	0.2	0.0	0.3	0.0	0.1	0.1	0.4	0.2	1.8	1.4	30.8	149.7				
6	116.5	4.2	1.3	0.8	5.4	0.1	0.0	0.0	7.8	0.4	204.4	9.7	0.0	33.9	17.2	48.3	450.0				
7	37.2	1.2	0.2	0.0	0.0	0.0	0.2	0.2	5.2	0.4	10.8	15.0	1.2	1.9	11.5	13.4	98.6				
8																					
9	3.3	0.3	0.1	0.1	0.1	0.2	0.7	1.8	2.6	0.4	1.2	2.2	0.0	6.9	4.1	28.5	52.5				
10	19.7	0.4	0.1	0.0	0.1	0.1	0.1	3.3	6.7	0.2	6.4	11.0	0.3	10.2	7.6	41.0	107.2				
11	64.8	0.7	0.1	0.0	1.7	0.4	0.0	0.7	0.4	0.0	5.7	0.1	0.2	0.3	17.4	45.5	138.0				
12	1.3	0.1	0.0	0.1	0.2	0.5	0.4	0.6	0.1	0.1	0.5	0.0	2.3	0.2	0.1	1.2	7.7				
13	1782.4	5.0	11.7	2.3	1.9	5.8	18.2	0.2	42.6	0.5	0.5	17.1	0.4	0.6	5.0	17.7	1911.9				
14	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.3	0.0	0.2	14.6	18.5	34.1				
15	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.9	0.0	0.1	0.8	0.0	0.0	0.0	0.3	1.6	4.3				
16																					
17	18.1	6.2	1.3	2.2	2.6	6.7	2.2	6.7	2.7	4.3	1.5	2.0	11.1	22.2	64.2	154.1					
18	129.9	6.2	0.4	0.9	1.6	0.4	0.9	7.2	1.4	23.6	0.8	10.2	16.8	80.9	230.3	511.7					
19	58.7	1.2	0.1	0.2	0.7	0.3	1.5	1.2	8.2	1.2	0.2	0.3	1.4	1.0	11.8	88.2					
Total	2,461.4	232.8	125.1	110.1	106.8	190.5	227.5	68.2	282.6	125.5	8.0	578.3	87.4	15.0	337.9	948.8	6,088.1				

Appendix 4.3.3 (2) O.D. Table of Inter-zonal Freight Traffic (1991)

Unit: 1,000 persons

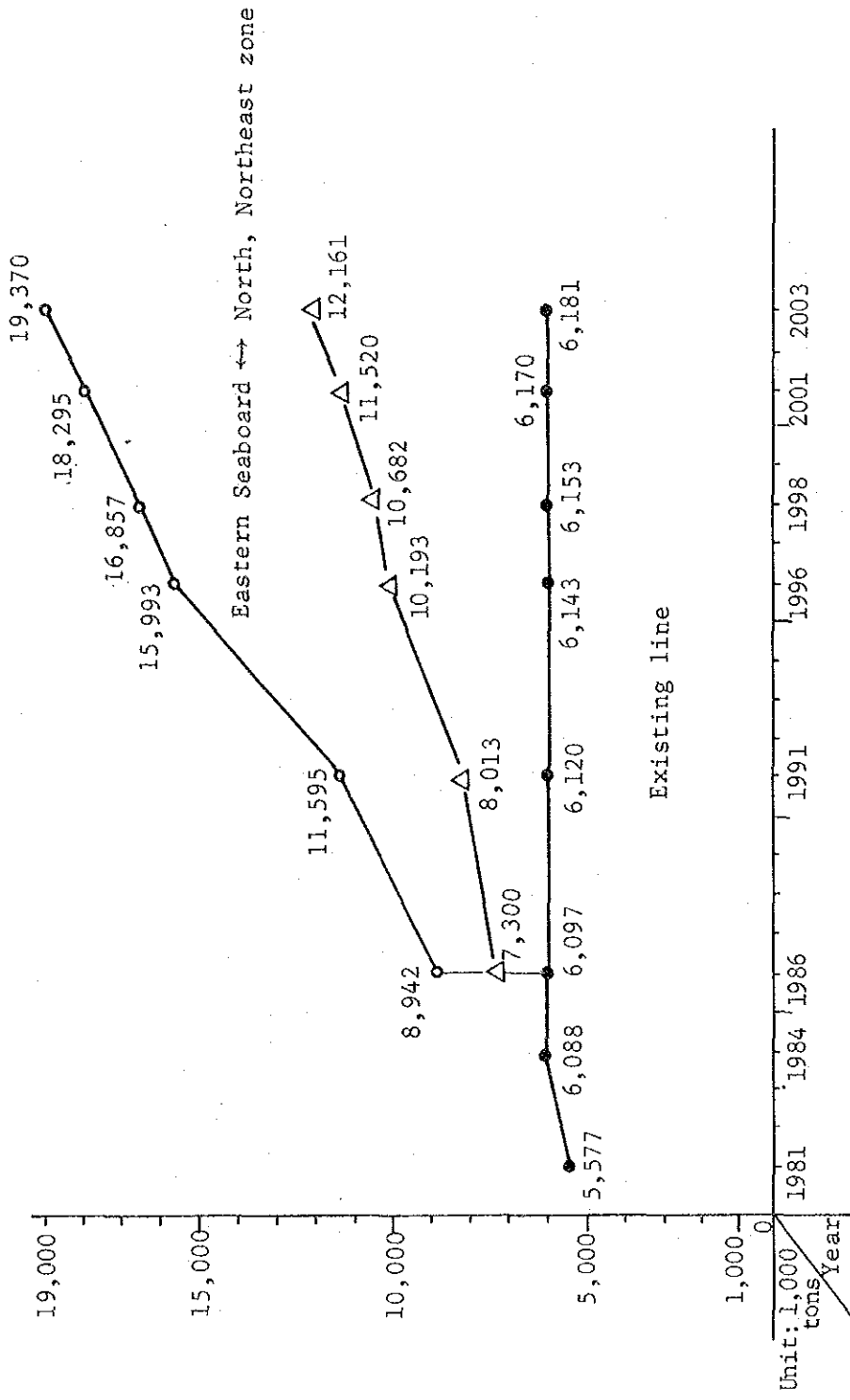
O	D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
1	1	181.0	109.1	96.0	92.6	167.8	203.9			47.1	225.1	69.6	1.1	251.5	0.5	9.5	1312.0	21.4	217.5	338.3	3344.0
2	1	74.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	32.3	0.0	0.0	249.8	0.6	4.1	6.5	369.3
3	1	2.5	0.6	2.0	0.1	2.0	0.1	0.1	0.1	0.1	0.5	1.1	0.3	10.0	0.1	0.0	198.2	0.6	6.1	2.8	227.1
4	1	73.9	2.8	0.8	0.1	1.5	0.1	0.1	0.1	0.1	0.5	2.3	0.4	44.3	1.9	0.5	162.9	2.0	18.3	62.4	374.8
5	1	79.5	24.0	0.4	5.2	6.0	0.1	0.0	0.1	0.0	0.3	0.0	0.1	0.1	0.4	0.1	276.9	1.8	1.4	30.9	427.2
6	1	117.1	4.3	1.3	0.8	5.5	0.0	0.0	0.0	0.0	0.1	7.9	0.4	207.0	9.8	0.0	271.5	34.1	17.3	48.6	725.7
7	1	37.4	1.1	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	5.2	0.4	10.9	15.1	1.1	353.0	1.9	11.6	13.5	451.8
8	1																				
9	1	3.4	0.3	0.1	0.0	0.1	0.1	0.8			1.9	2.7	0.3	1.1	2.3	0.0	298.6	7.0	4.2	28.6	351.5
10	1	19.8	0.4	0.0	0.0	0.0	0.1	0.0	0.0	3.4	6.6	0.1	0.1	6.5	11.1	0.3	361.1	10.2	7.6	41.2	468.4
11	1	65.1	0.8	0.1	0.0	1.8	0.5	0.0	0.0	0.8	0.5	0.0	0.0	5.6	0.0	0.1	0.0	0.3	17.6	45.9	139.1
12	1	1.3	0.0	0.0	0.1	0.1	0.6	0.4	0.0	0.6	0.0	0.0	0.0	0.5	0.0	2.3	179.2	0.1	0.1	1.1	186.4
13	1	1792.0	5.1	11.8	2.4	1.9	5.9	18.3		0.1	42.7	0.5	0.5	17.2	0.4	0.4	363.8	0.6	5.0	17.8	2286.0
14	1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.1	14.8	18.7	34.2
15	1	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.3	1.7	4.4
16	1	558.0	81.9	65.0	53.4	90.8	89.0	115.7		97.9	118.4	0.0	58.7	119.2	0.0	0.0	0.0	0.0	0.0	0.0	1648.0
17	1	18.2	6.2	1.3	2.2	2.7	6.7	2.2		6.7	2.7	4.3	1.5	2.0	11.1	0.1	0.0	0.0	22.4	64.5	154.8
18	1	130.5	6.2	0.4	0.9	1.6	0.5	0.9		7.3	1.4	23.8	0.9	10.3	16.9	0.1	0.0	81.3	231.5	514.5	
19	1	59.0	1.1	0.1	0.1	0.8	0.3	1.5		1.1	8.3	1.1	0.1	0.3	1.4	0.2	0.0	1.0	11.8	88.2	
Total		3032.5	315.8	190.7	163.7	198.1	281.0	344.0		166.2	402.6	125.7	66.6	701.9	87.8	14.7	4027.0	163.0	360.1	954.0	11593.4

Appendix 4.3.3 (3) O.D. Table of Inter-zonal Freight Traffic (2003)

Unit: 1,000 persons

O. D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
1	132.8	110.2	97.0	93.5	169.3	205.9			47.5	227.4	70.3	1.2	253.9	0.5	9.6	2633.0	21.6	219.6	341.7	4685.0
2	75.0	0.1	0.4	0.1	0.0	0.1			0.0	0.0	0.5	0.8	32.7	0.1	0.0	388.3	0.6	4.1	6.5	509.3
3	2.6	0.6	2.1	0.2	2.1	0.1			0.2	0.5	1.2	0.3	10.2	0.1	0.0	308.1	0.6	6.2	2.7	337.8
4	74.6	2.7	0.7		0.1	1.5	0.1		0.2	0.5	2.3	0.4	44.7	1.9	0.5	253.3	2.0	18.4	63.0	466.9
5	80.3	24.3	0.4	5.2		6.0	0.2		0.0	0.3	0.0	0.1	0.1	0.4	0.2	430.6	1.8	1.4	31.2	582.5
6	118.4	4.3	1.3	0.8	5.5		0.0		0.0	0.1	7.9	0.4	207.4	9.8	0.0	422.1	34.4	17.4	49.0	878.8
7	37.8	1.2	0.2	0.1	0.0	0.0			0.2	0.2	5.3	0.4	11.0	15.3	1.1	548.7	1.9	11.7	13.6	648.7
8																				
9	3.4	0.3	0.1	0.1	0.1	0.1	0.7		1.9	2.7	2.7	0.3	1.2	2.3	0.0	464.3	7.1	4.2	28.9	517.7
10	20.0	0.4	0.1	0.0	0.1	0.1	0.1		3.4	6.7	6.7	0.2	6.5	11.1	0.3	561.4	10.3	7.7	41.6	670.0
11	65.7	0.8	0.1	0.0	1.7	0.5	0.0		0.8	0.5	0.0	0.0	5.7	0.1	0.2	0.0	0.3	17.6	46.3	140.3
12	1.3	0.1	0.0	0.1	0.2	0.6	0.3		0.7	0.1	0.1	0.5	0.5	0.0	2.3	278.6	0.2	0.1	1.2	286.4
13	1809.7	5.1	11.9	2.4	1.9	5.9	18.5		0.2	43.2	0.6	0.5	17.4	0.0	0.4	565.6	0.7	5.0	18.0	2507.0
14	0.1	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.1	0.2	0.0	0.3	0.0	0.0	0.0	0.2	14.7	18.8	34.5
15	0.5	0.0	0.0	0.1	0.0	0.0	0.0		0.9	0.0	0.1	0.8	0.0	0.0	0.0	0.0	0.0	0.4	1.6	4.4
16	3375.0	272.3	216.1	177.6	301.9	296.0	384.8		325.6	393.7	0.0	195.4	396.6	0.0	0.0	0.0	0.0	0.0	0.0	6335.0
17	18.4	6.3	1.3	2.2	2.7	6.8	2.2		6.8	2.7	4.3	1.6	2.0	11.3	0.1	0.0	0.0	22.6	65.2	156.5
18	131.9	6.3	0.4	0.9	1.7	0.5	0.9		7.3	1.4	24.0	0.8	10.4	17.0	0.2	0.0	82.2	233.8	519.7	
19	59.6	1.2	0.1	0.2	0.7	0.3	1.5		1.2	8.3	1.2	0.2	0.3	1.4	0.2	0.0	1.1	12.0	89.5	
Total	5874.3	508.8	343.0	289.2	410.4	489.7	615.4		395.0	680.9	127.4	203.4	983.5	88.7	15.1	6854.0	165.0	363.1	963.1	19370.0

Appendix 4.3.3 (4) Inter-zonal Freight Traffic Volume



Appendix 5.1.1 Present Conditions of Intermediate-distance
Commuter Train

(1) At present, operating conditions of commuter train arriving at Bangkok station during peak time zone (7:00 to 8:00) are as presented in the table below (surveyed October 7, 1983).

	Train No.	Arrival time at Bangkok	Number of cars per train consist (cars)	Number of alighting passengers (persons)	Loading factor (%)	Remarks
Northern line	222	7:15	8	908	149	(Ban Phachi)
	168	7:25	6	730	160	(Don Muang)
	166	7:45	6	862	189	(Ayutthaya)
	224	8:00	6	625	137	(Lop Buri)
	Subtotal		26	3,125	158	
Eastern line	202	7:30	8	549	90	(Chachoeng Sao)
	182	7:55	4	602	198	(Prachin Buri)
	Subtotal		12	1,151	126	
Total			* 38	4,276	148	* Average 6.2 cars per train

(2) Rate of concentration in the morning rush hour (7:00 to 8:00)
..... 28%

Total number of passengers alighting at Bangkok is 23,971 persons per day, with ridership on express and rapid trains to be 8,580 persons per day.

Thus, the number of passengers on ordinary and commuter trains are 15,391 persons per day, and rate of concentration in peak time (7:00 to 8:00) is

$$\frac{4,276}{15,391} = 0.28.$$

Appendix 5.3.1 Formula to Calculate Track Capacity of
Double-track Section

Track capacity with mixed operation of different kinds of trains could be calculated by the following formula.

$$N = \frac{1,440 \times f}{h V' + (r + u + 1) V} \text{ (per day)}$$

Whereas

N: Track capacity in each direction

h: Headway between high-speed trains operated in succession

r: Minimum headway required between early arriving low-speed train and later arriving high-speed train (3 - 4 min. as standard)

u: Minimum headway required between early departing high-speed train and later departing low-speed train (2.5 min. in general)

V: Ratio of high-speed trains

$$= \frac{\text{the number of high-speed trains (established)}}{\text{the number of trains in each direction (established)}}$$

V': Ratio of low-speed trains

$$= \frac{\text{the number of low-speed trains (established)}}{\text{the number of trains in each direction (established)}}$$

f: Track utilization ratio to be determined in accordance with nature of each line section (0.6 in general)

[Example of calculation]

between Chit-La-DA and Bang Sue (2003 year Case I)

$$V' = \frac{45}{153} = 0.294 \qquad V = \frac{108}{158} = 0.706$$

$$N = \frac{1,440 \times 0.6}{5 \times 0.294 + (4 + 2.5 + 1) \times 0.706}$$

$$= \frac{864}{6.765} = 128 \text{ (per day)}$$

Appendix 5.3.2 Track Capacity of Freight Line

Track capacity of exclusive freight line in the section between Chit-La-Da and Bang Sue, when newly provided, is as follows:

(1) Facility condition is as follows:

- Stations with a passing facility (for train meeting) will be provided at the following location.

Eastern Line	New St. (Rama VI Rd.)	} (Station spacing of approximately 3 km)
Northern Line	Sam Sen St.		
Northern Line	Bang Sue yard		} (Station spacing of approximately 3 km)

- Average operating time of freight trains between above stations is estimated to be about 6 minutes.

Speed limit at turnout : 30 km/h
 Average deceleration : 0.5 km/h/s
 Maximum speed of freight train: 50 km/h

- Route control of trains will be done by CTC.

(2) Thus, track capacity (N) of freight line could be calculated by the following formula:

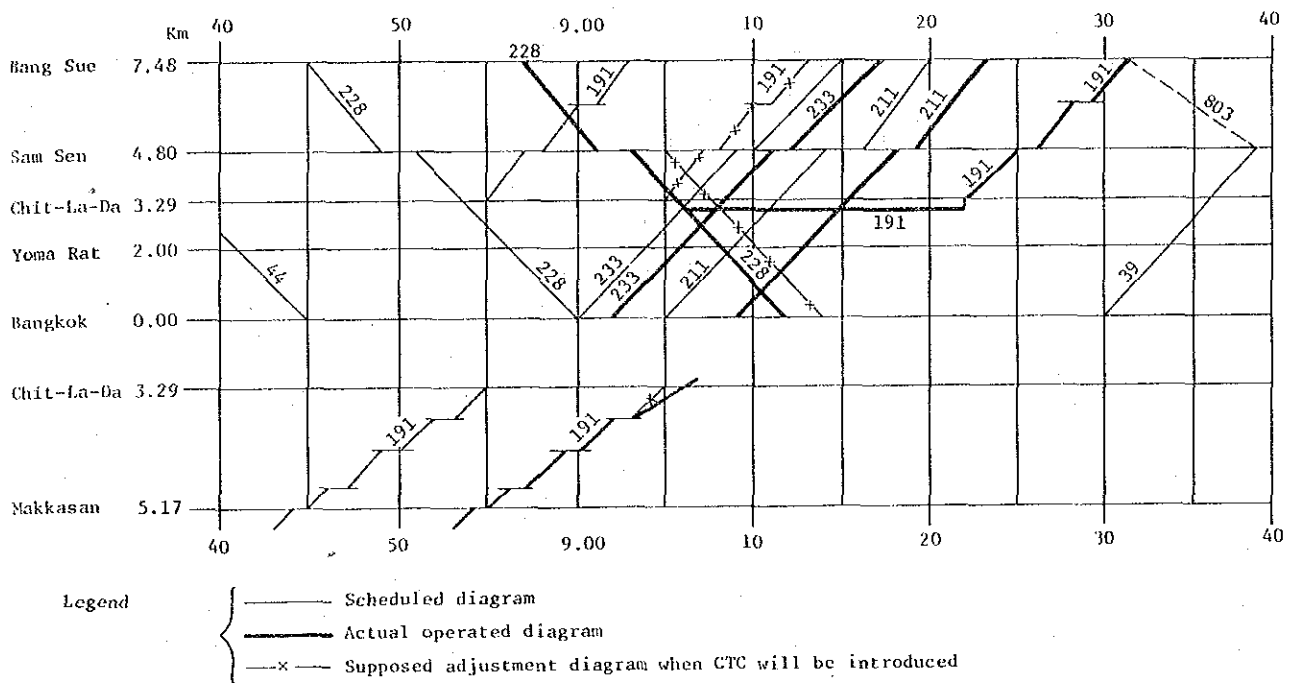
$$N = \frac{1,440 \times f}{t + c} \text{ (per day)}$$

Whereas,

- t: Average operating time between stations (6 min.)
- c: Time required for block handling (automatic block system 1.5 min.)
- f: Track utilization ratio (0.6)

$$N = \frac{1,440 \times 0.6}{6 + 1.5} = \frac{864}{7.5} = 115 \text{ (per day)}$$

Appendix 5.3.3 Example of Obstruction by Rail-rail Grade-crossing
at Chit-La-Da (October 5, 1983)



Explanation (Concerning commuter train No. 191)

- (1) Primary cause is 10 minute delay of Train No. 191 due to speed restrict and awaiting for meeting train No. 203 in the Eastern line.
- (2) Arrived at Chit-La-Da passing track 11 minute late due to 12 minute delay of train No. 228
- (3) Waiting for passing of long distance train No. 233 and No. 211 (waiting for track clearance)
- (4) After waiting for train No. 211 enters into home signal at Bang Sue, departing from Chit-La-Da 27 minute late (16 minute additional delay)
- (5) When CTC is introduced and relative location of trains can be identified in a dispatching room, operation adjustment will be done as indicated by the diagram lines: —x—x—.

Thus train No. 191 is expected to operate with 10 minute delay instead of train No. 228 is 2 minute additional delay.

Appendix 7.1.1 Evaluation of Locomotive Hauling Capacity on Gradient

Type		ALSTHOM	GE	KRUPP
Service weight (kg)		82,500	75,000	55,000
Maximum tractive effort at wheel rim kg (@ adhesion weight)		24,800 (@ 30%)	22,500 (@ 30%)	18,150 (@ 33%)
Minimum continuous tractive effort kg (@ km/h)		20,600 (@ 21 km/h)	17,963 (@ 13 km/h)	15,250 (@ 14.5 km/h)
Maximum output (HP) & (@ RPM)		$\frac{2,400 \text{ HP}}{\text{@ } 1,500 \text{ rpm}}$	$\frac{2 \times 660 \text{ HP}}{\text{@ } 2,000 \text{ rpm}}$	$\frac{1,500 \text{ HP}}{\text{@ } 1,400 \text{ rpm}}$
Present hauling capacity	10°/∞	1,280 tons	1,200 tons	1,200 tons
(1) Capability of starting on gradient (with present hauling capacity)				
Table of Rolling Stock Features (SRT) ($\mu=0.30-0.33$)	10°/∞	○	○	○
	12°/∞	○	○	×
JNR calculation method ($\mu=0.285$)	10°/∞	○	○	×
	12°/∞	○	△	×
(2) Acceleration performance when starting on upward gradient (Compared with 0.15 km/h/s)				
Table of Rolling Stock Features (SRT) ($\mu=0.30-0.33$)	10°/∞	○	○	×
	12°/∞	△	×	×
JNR calculation method ($\mu=0.285$)	10°/∞	○	△	×
	12°/∞	△	×	×
(3) Deceleration performance When using brakes on downward gradient (Compared with 0.3 km/h/s)				
	10°/∞	○	○	○
	12°/∞	△	△	△

○: Fully capable △: Slightly difficult ×: Incapable

Appendix 9.1.1 Land Use Composition

(Unit: 10⁴m²)

	Left-Hand Side of Railway from Bangkok						Right-Hand Side of Railway from Bangkok								
	Residential Area	Commercial Area	Industrial Area	Infrastructural Area	Other Area	Residential Area	Commercial Area	Industrial Area	Infrastructural Area	Other Area					
1. Northern Line															
Rama I - Phetburi	6.21(13.5)	22.81(49.6)	0.92 (0.0)	5.52(12.0)	10.54(22.9)	29.96(65.2)	7.28(15.8)	0.00(0.0)	3.28 (7.1)	5.48(11.9)					
Phetburi - Sriyuthaya	7.21(20.3)	0.00 (0.0)	0.00 (0.0)	4.27(12.1)	23.97(67.6)	8.16(23.0)	5.81(16.4)	0.00(0.0)	9.19(25.9)	12.28(34.7)					
Sriyuthaya - Ratvithi	38.24(86.1)	0.00 (0.0)	0.00 (0.0)	5.07(11.4)	1.09 (2.5)	0.00 (0.0)	0.00 (0.0)	0.00(0.0)	5.87(13.4)	38.53(87.6)					
Ratvithi - Nakornchaisri	22.80(65.9)	0.84 (2.4)	0.00 (0.0)	5.28(15.3)	5.66(16.4)	6.27(18.1)	2.26 (6.5)	0.00(0.0)	5.99(17.3)	20.08(58.1)					
Nakornchaisri - Setsiri	19.97(61.3)	0.73 (2.2)	0.67 (2.1)	2.97 (9.1)	8.24(25.3)	21.24(65.2)	1.12 (3.4)	0.00(0.0)	10.05(30.9)	0.17 (0.5)					
Setsiri - Ranong	9.17(27.1)	0.00 (0.0)	0.00 (0.0)	1.73 (5.1)	22.90(68.2)	15.92(47.1)	0.96 (2.8)	0.00(0.0)	4.47(13.2)	12.45(36.9)					
Ranong - Pradipat	2.75 (8.6)	0.00 (0.0)	0.00 (0.0)	2.94 (9.2)	26.31(82.2)	22.95(71.7)	1.31 (4.1)	0.00(0.0)	2.91 (9.1)	4.83(15.1)					
Pradipat - Bang Sue st.	7.57(16.4)	2.72 (5.9)	1.76 (3.8)	4.29 (9.3)	29.86(64.6)	26.57(57.5)	2.83 (6.1)	0.00(0.0)	14.91(32.3)	1.89 (4.1)					
2. Western Line															
Rama VI - Phayathai	8.12(15.7)	0.40 (0.8)	0.00 (0.0)	9.92(19.2)	33.17(64.3)	33.51(64.9)	10.21(19.8)	0.00(0.0)	7.20(14.0)	0.67 (1.3)					
Phayathai - Rajaprarop	17.43(37.1)	14.51(31.0)	0.16 (0.3)	8.71(18.5)	6.17(13.1)	22.45(47.7)	16.07(34.2)	0.00(0.0)	2.78 (5.9)	5.72(12.2)					
Rajaprarop - Makkasan st.	21.06(69.3)	0.41 (1.3)	0.00 (0.0)	2.00 (6.6)	6.92(22.8)	8.40(27.6)	19.03(62.6)	0.00(0.0)	1.69 (5.6)	1.28 (4.2)					
3. Mae Nam Line															
Makkasan st - Sukhumvit	20.48(51.2)	10.21(25.5)	0.00 (0.0)	2.55 (6.4)	6.75(16.9)	15.52(38.8)	4.93(12.3)	1.11 (2.8)	5.83(14.6)	12.61(31.5)					
Sukhumvit - Rama IV	33.54(29.5)	10.25 (9.0)	55.21(48.6)	7.19 (6.3)	7.41 (6.6)	55.46(48.7)	6.65 (5.9)	0.65 (0.6)	9.97 (8.8)	40.87(36.0)					
Rama IV - Mae Nam st.	40.32(78.1)	5.00 (9.7)	2.52 (4.9)	3.12 (6.1)	0.64 (1.2)	10.47(20.3)	8.62(16.7)	1.53 (3.0)	22.16(42.9)	8.82(17.1)					

Appendix 10.3.1 Construction Cost of Each Flyover (1)

Northern Line

(Unit: million Baht)

Flyover	Item	Economic Cost			Tax	Total
		F/C	D/C	Total		
No. 1	Construction	38.85	43.94	82.79	10.26	93.05
	Land Acquisition	-	17.00	17.00	-	17.00
	Compensation	-	25.50	25.50	-	25.50
	Sub-Total	38.85	86.44	125.29	10.26	135.55
	Contingencies	6.57	13.71	20.28	1.72	22.00
	Engineering	4.97	4.97	9.94	1.23	11.17
	TOTAL	50.39	105.12	155.51	13.21	168.72
No. 2	Construction	58.18	64.72	122.90	15.22	138.12
	Land Acquisition	-	30.00	30.00	-	30.00
	Compensation	-	2.77	2.77	-	2.77
	Sub-Total	58.18	97.49	155.67	15.22	170.89
	Contingencies	9.83	15.73	25.56	2.56	28.12
	Engineering	7.38	7.38	14.76	1.82	16.58
	TOTAL	75.39	120.60	195.99	19.60	215.59
No. 3	Construction	42.08	47.15	89.23	11.04	100.27
	Land Acquisition	-	34.50	34.50	-	34.50
	Compensation	-	9.90	9.90	-	9.90
	Sub-Total	42.08	91.55	133.63	11.04	144.67
	Contingencies	7.11	14.54	21.65	1.85	23.50
	Engineering	5.35	5.35	10.70	1.32	12.02
	TOTAL	54.54	111.44	165.98	14.21	180.19

Construction Cost of Each Flyover (2)

Northern Line

(Unit: million Baht)

Flyover	Item	Economic Cost			Tax	Total
		F/C	D/C	Total		
No. 4	Construction	10.97	12.39	23.36	2.90	26.26
	Land Acquisition	-	-	-	-	-
	Compensation	-	-	-	-	-
	Sub-Total	10.97	12.39	23.36	2.90	26.26
	Contingencies	1.86	2.07	3.93	0.49	4.42
	Engineering	1.40	1.40	2.80	0.35	3.15
	TOTAL	14.23	15.86	30.09	3.74	33.83
No. 5/6	Construction	30.94	35.33	66.27	8.21	74.48
	Land Acquisition	-	-	-	-	-
	Compensation	-	-	-	-	-
	Sub-Total	30.94	35.33	66.27	8.21	74.48
	Contingencies	5.28	5.90	11.14	1.37	12.51
	Engineering	3.98	3.98	7.96	0.98	8.94
	TOTAL	40.16	45.21	85.37	10.56	95.93
No. 7	Construction	22.78	25.76	48.54	6.02	54.56
	Land Acquisition	-	6.00	6.00	-	6.00
	Compensation	-	15.00	15.00	-	15.00
	Sub-Total	22.78	46.76	69.54	6.02	75.56
	Contingencies	3.85	7.45	11.30	1.01	12.31
	Engineering	2.91	2.91	5.82	0.72	6.54
	TOTAL	29.54	57.12	86.66	7.75	94.41
GRAND TOTAL OF NORTHERN LINE		264.25	455.35	719.60	69.07	<u>788.67</u>

Construction Cost of Each Flyover (3)

Eastern Line

(Unit: million Baht)

Flyover	Item	Economic Cost			Tax	Total
		F/C	D/C	Total		
No. 8	Construction	36.93	40.09	77.02	9.70	86.72
	Land Acquisition	-	-	-	-	-
	Compensation	-	-	-	-	-
	Sub-Total	36.93	40.09	77.02	9.70	86.72
	Contingencies	6.23	6.71	12.94	1.63	14.57
	Engineering	4.63	4.63	9.26	1.14	10.40
	TOTAL	47.79	51.43	99.22	12.47	111.69
No. 9	Construction	52.62	58.77	111.39	13.80	125.19
	Land Acquisition	-	8.12	8.12	-	8.12
	Compensation	-	6.79	6.79	-	6.79
	Sub-Total	52.62	73.68	126.30	13.80	140.10
	Contingencies	8.90	12.05	20.95	2.32	23.27
	Engineering	6.68	6.68	13.36	1.65	15.01
	TOTAL	68.20	92.41	160.61	17.77	178.38
No. 10	Construction	43.82	49.12	92.94	11.51	104.45
	Land Acquisition	-	8.12	8.12	-	8.12
	Compensation	-	6.79	6.79	-	6.79
	Sub-Total	43.82	64.03	107.85	11.51	119.36
	Contingencies	7.41	10.44	17.85	1.93	19.78
	Engineering	5.58	5.58	11.16	1.38	12.54
	TOTAL	56.81	80.05	136.86	14.82	151.68
GRAND TOTAL OF NORTHERN LINE		172.80	223.89	396.69	45.06	<u>441.75</u>

Construction Cost of Each Flyover (4)

Mae Nam Line

(Unit: million Baht)

Flyover	Item	Economic Cost			Tax	Total
		F/C	D/C	Total		
No. 11	Construction	8.22	9.41	17.63	2.19	19.82
	Land Acquisition	-	-	-	-	-
	Compensation	-	-	-	-	-
	Sub-Total	8.22	9.41	17.63	2.19	19.82
	Contingencies	1.39	1.57	2.96	0.37	3.33
	Engineering	1.06	1.06	2.12	0.26	2.38
	TOTAL	10.67	12.04	22.71	2.82	25.53
No. 12 or 13	Construction	98.03	110.06	208.09	25.97	234.06
	Land Acquisition	-	45.19	45.19	-	45.19
	Compensation	-	31.63	31.63	-	31.63
	Sub-Total	98.03	186.88	284.91	25.97	310.88
	Contingencies	16.59	29.92	46.51	4.36	50.87
	Engineering	12.59	12.59	25.18	3.11	28.29
	TOTAL	217.21	229.39	356.60	33.44	390.04
No. 14	Construction	96.72	108.45	205.17	25.61	230.78
	Land Acquisition	-	0.56	0.56	-	0.56
	Compensation	-	0.39	0.39	-	0.39
	Sub-Total	96.72	109.40	206.12	25.61	231.73
	Contingencies	16.37	18.27	34.64	4.30	38.94
	Engineering	12.42	12.42	24.84	3.07	27.91
	TOTAL	125.51	140.09	265.60	32.98	298.58
GRAND TOTAL OF MAE NAM LINE		390.60	610.91	1,001.51	102.68	<u>1,104.19</u>

Appendix 11.4.1 Economic Analysis for Track Elevation Project,
State Railway of Thailand (Case-I-3)

(MIL. BAIT) PAGE 1 / PART 1

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
INVESTMENT DIFF	18.4	49.7	164.7	137.4	43.8	174.3	-30.6	5.0	-0.1	-0.2	-0.7	110.6	111.3	-10.4	0.4
WITH	33.6	129.2	370.0	496.4	547.2	519.7	512.6	649.9	75.0	24.0	28.3	376.8	127.5	23.4	0.4
CIVIL WORK	25.0	100.1	306.5	460.8	456.4	402.7	192.9	67.7	71.7	20.7	10.4	118.9	121.1	12.7	
STATION FACILITY					1.2	4.1	94.7	1.1			1.1	14.0			
SIGNALS & TELECOM	8.7	29.1	37.5	9.6	87.6	112.8	225.0	5.1	3.3	3.3	16.6	35.2	6.5	10.7	0.4
LAND ACQ & COMP			26.1	26.1											
ROLLING STOCKS								576.1				208.7			
-SALVAGE VALUE															
WITHOUT	15.2	79.6	205.4	359.0	503.4	365.4	593.1	644.9	75.1	24.2	29.0	266.2	16.3	33.8	
RAILWAY	15.2	55.6	67.9	51.8	125.5	206.1	424.1	644.9	75.1	24.2	29.0	266.2	16.3	33.8	
CIVIL WORK	6.6	26.7	5.3	16.6	37.0	92.2	136.5	67.7	71.8	20.9	10.8	7.4	9.2	20.3	
STATION FACILITY					0.6	4.1	66.6	1.1			1.1	14.0			
SIGNALS & TELECOM	8.6	28.9	36.5	9.1	87.9	109.8	221.0		3.3	3.3	17.1	36.1	7.0	13.6	
LAND ACQ & COMP			26.1	26.1											
ROLLING STOCKS								576.1				208.7			
-SALVAGE VALUE															
ROAD FLYOVER	23.9	137.4	307.2	377.9	139.3	119.1									
MAINT/OPE COST DIFF					1.0	2.6	4.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5
FACILITY MAINT COST DIFF								5.7	5.7	5.7	5.7	5.7	5.7	5.7	6.2
CIVIL WORK								7.8	7.8	7.8	7.8	7.8	7.8	7.8	8.3
WITH								12.8	12.8	12.8	12.8	12.8	12.8	12.8	19.3
WITHOUT								5.0	5.0	5.0	5.0	5.0	5.0	5.0	11.0
STATION FACILITY								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH								0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
WITHOUT								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
SIGNALS & TELECOM								0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
WITH								13.4	13.4	13.4	13.4	13.4	13.4	13.4	15.1
WITHOUT								12.7	12.7	12.7	12.7	12.7	12.7	12.7	14.5
ROLLING STOCKS															
WITH								9.6	9.6	9.6	9.6	12.9	12.9	12.9	12.9
WITHOUT								9.6	9.6	9.6	9.6	12.9	12.9	12.9	12.9
ROAD FLYOVER								-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
WITH								3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
WITHOUT															
OPERATING COST DIFF					1.0	2.6	4.2	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
PSNL COST DIFF					0.3	0.7	1.1	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
WITH	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WITHOUT	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
FUEL COST DIFF					0.8	2.0	3.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
WITH	5.5	5.5	5.5	5.5	5.5	5.5	5.5	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.9
WITHOUT	5.5	5.5	5.5	5.5	4.7	3.5	2.3	1.6	1.6	1.7	1.7	1.8	1.9	1.9	2.0
TOTAL BENEFIT DIFF				12.7	-48.5	-115.7	-150.0	214.7	216.2	217.7	219.2	220.9	222.6	224.4	235.6
WITH								601.8	613.2	625.4	638.2	651.7	666.1	681.3	506.8
TIME SAVING BENEFIT								200.1	211.3	223.1	235.5	248.8	262.8	277.6	293.3
BENE OF RAILWAY PSNGR								200.1	211.3	223.1	235.5	248.8	262.8	277.6	293.3
BENE OF ROAD VEHICLE								18.0	19.0	20.0	21.1	22.3	23.6	24.9	26.3
MOTORCYCLE								10.2	10.8	11.4	12.0	12.7	13.4	14.2	15.0
SAHLOR								111.4	117.6	124.2	131.2	138.5	146.3	154.6	163.4
SEDAN								7.4	7.8	8.2	8.7	9.2	9.7	10.2	10.8
LIGHT BUS								23.3	29.9	31.6	33.3	35.2	37.2	39.3	41.5
BUS								24.0	26.2	27.7	29.2	30.8	32.6	34.4	36.3
TRUCK								11.5	11.8	12.2	12.5	12.8	13.2	13.6	14.0
VEHICLE AT CROSSING								11.5	11.8	12.2	12.5	12.8	13.2	13.6	14.0
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE								2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
LAND USE BENEFIT								168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
USAGE OF SPACE								168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
FOR COMMERCIAL USE								9.8	9.8	9.8	9.8	9.8	9.8	9.8	10.7
FOR OTHER USE															
WITHOUT				-12.7	48.5	115.7	150.0	187.1	197.1	207.7	219.0	230.9	243.5	257.0	271.2
TIME SAVING BENEFIT					51.7	109.1	140.6	174.8	184.9	195.5	206.7	218.6	231.3	244.7	258.9
BENE OF ROAD VEHICLE					51.7	109.1	140.6	174.8	184.9	195.5	206.7	218.6	231.3	244.7	258.9
FUEL SAVING BENEFIT				-12.7	-8.7	-3.6	-1.6	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
VEHICLE AT CROSSING				-12.7	-6.6	1.2	4.4	7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT FLYOVER					-2.1	-4.8	-5.9	-7.1	-7.3	-7.5	-7.7	-7.9	-8.1	-8.3	-8.6
ACCIDENT AVOIDANCE BENE					0.3	6.8	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT					5.2	9.5	9.7	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
USAGE OF SPACE					5.2	9.5	9.7	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
FOR COMMERCIAL USE					4.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
FOR OTHER USE					1.2	3.0	3.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
NET FLOW	-18.4	-49.7	-164.7	-124.7	-93.3	-292.6	-123.6	204.7	211.2	212.8	214.9	105.2	106.2	229.8	229.6
EIRR	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
INVESTMENT DIFF	-328.3														
WITH	252.7				647.1				80.5	561.2			177.4		-2137.4
CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE	252.7				647.1				80.5	561.2			177.4		576.4 2713.8
WITHOUT	252.7				647.1				80.5	561.2			177.4		-1009.1
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	252.7				647.1				80.5	561.2			177.4		-1809.1 576.4 2385.4
MAINT/OPE COST DIFF	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
FACILITY MAINT COST DIFF	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
CIVIL WORK	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
WITH	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
WITHOUT	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
STATION FACILITY	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
WITHOUT	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
SIGNALS & TELECOM	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
WITH	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
WITHOUT	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
ROLLING STOCKS	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
WITH	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
WITHOUT	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
ROAD FLYOVER	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
WITH	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
WITHOUT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
OPERATING COST DIFF	-0.6	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
PSHL COST DIFF	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
WITH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WITHOUT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
FUEL COST DIFF	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
WITH	2.0	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
WITHOUT	2.1	2.1	2.2	2.3	2.4	2.5	2.6	2.6	2.7	2.8	2.9	3.0	3.1	3.3	3.4
TOTAL BENEFIT DIFF	237.6	239.6	241.0	244.0	246.4	248.5	250.7	253.0	255.4	258.0	260.7	263.5	266.5	269.7	273.1
WITH	523.0	541.9	561.0	581.3	602.7	618.1	634.1	650.9	668.5	686.9	706.2	726.3	747.4	769.5	792.7
TIME SAVING BENEFIT BENE OF RAILWAY PSNGR	310.0	327.6	346.4	366.2	387.2	402.4	418.2	434.8	452.1	470.3	489.3	509.3	530.1	552.0	574.9
BENE OF ROAD VEHICLE	310.0	327.6	346.4	366.2	387.2	402.4	418.2	434.8	452.1	470.3	489.3	509.3	530.1	552.0	574.9
MOTORCYCLE	27.8	29.4	31.0	32.8	34.7	36.0	37.4	38.9	40.5	42.1	43.8	45.6	47.4	49.4	51.4
SAHLOR	15.9	16.8	17.7	18.8	19.9	20.6	21.4	22.3	23.1	24.1	25.0	26.0	27.1	28.2	29.3
SEDAN	172.7	182.5	193.0	204.1	215.8	224.4	233.4	242.8	252.6	262.9	273.7	285.1	296.9	309.3	322.3
LIGHT BUS	11.4	12.1	12.7	13.5	14.2	14.8	15.4	16.0	16.6	17.3	18.0	18.7	19.4	20.2	21.1
BUS	43.8	46.3	49.0	51.8	54.7	56.8	58.9	61.1	63.4	65.9	68.4	71.0	73.8	76.7	79.8
TRUCK	38.4	40.6	42.9	45.3	47.9	49.7	51.7	53.7	55.9	58.1	60.5	62.9	65.5	68.2	71.0
FUEL SAVING BENEFIT VEHICLE AT CROSSING	14.3	14.7	15.2	15.6	16.0	16.2	16.4	16.7	16.9	17.1	17.3	17.6	17.8	18.0	18.3
VEHICLE AT FLYOVER	14.3	14.7	15.2	15.6	16.0	16.2	16.4	16.7	16.9	17.1	17.3	17.6	17.8	18.0	18.3
ACCIDENT AVOIDANCE BENE	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
LAND USE BENEFIT USAGE OF SPACE	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4
FOR COMMERCIAL USE	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8
FOR OTHER USE	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
WITHOUT	286.3	302.3	319.2	337.2	356.3	369.6	383.5	398.0	413.1	429.0	445.5	462.8	480.9	499.8	519.6
TIME SAVING BENEFIT BENE OF ROAD VEHICLE	273.9	289.9	306.9	324.9	343.9	357.2	371.1	385.6	400.7	416.5	433.1	450.4	468.5	487.4	507.1
WITHOUT	273.9	289.9	306.9	324.9	343.9	357.2	371.1	385.6	400.7	416.5	433.1	450.4	468.5	487.4	507.1
FUEL SAVING BENEFIT VEHICLE AT CROSSING	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
VEHICLE AT FLYOVER	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
WITHOUT	-0.8	-9.0	-9.3	-9.5	-9.8	-9.9	-10.1	-10.2	-10.3	-10.5	-10.6	-10.8	-10.9	-11.0	-11.2
ACCIDENT AVOIDANCE BENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT USAGE OF SPACE	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
FOR COMMERCIAL USE	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
FOR OTHER USE	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
NET FLOW	232.0	234.1	236.2	238.5	240.9	243.0	245.1	247.5	249.9	252.4	255.2	258.0	261.0	264.2	595.9
EIRR	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249	16.249

Appendix 11.4.2 Economic Analysis for Track Elevation Project,
State Railway of Thailand (Case-I-2)

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	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
INVESTMENT DIFF	15.0	35.8	99.6	36.8	-96.0	101.5	-52.1	0.1	0.1	-0.1	-0.2	110.0	110.2	-10.2	
WITH	30.2	115.3	299.9	195.8	456.7	446.9	491.0	645.0	75.2	24.1	28.8	377.0	426.5	23.6	
CIVIL WORK	21.3	85.6	237.1	161.2	367.5	332.7	175.1	67.9	71.9	20.0	10.6	118.6	120.0	12.7	
STATION FACILITY					1.3	4.1	99.7	1.1				1.1	14.0		
SIGNALS & TELECOM	8.9	29.7	36.0	8.6	87.9	110.0	221.3		3.3	3.3	17.1	35.7	5.6	10.9	
LAND ACQ & COMP			26.1	26.1											
ROLLING STOCKS								576.1				208.7			
-SALVAGE VALUE															
WITHOUT	15.2	79.6	205.4	359.0	593.4	395.4	543.1	644.9	75.1	24.2	29.0	266.2	16.3	33.8	
RAILWAY	15.2	55.6	67.9	51.8	125.5	206.1	426.1	644.9	75.1	24.2	29.0	266.2	16.3	33.8	
CIVIL WORK	6.6	26.7	5.3	16.6	37.0	92.2	136.5	67.7	71.0	20.9	10.8	7.4	9.2	20.3	
STATION FACILITY					0.6	4.1	66.6	1.1							
SIGNALS & TELECOM	8.6	28.9	36.5	9.1	87.9	109.8	221.0		3.3	3.3	17.1	36.1	7.0	13.6	
LAND ACQ & COMP			26.1	26.1											
ROLLING STOCKS								576.1				208.7			
-SALVAGE VALUE															
ROAD FLYOVER		23.9	137.4	307.2	377.9	139.3	119.1								
MAINT/OPE COST DIFF					1.0	2.6	4.2	4.6	4.6	4.7	4.8	4.8	4.9	4.9	5.4
FACILITY MAINT COST DIFF								3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.6
CIVIL WORK								5.6	5.6	5.6	5.6	5.6	5.6	5.6	6.2
WITH								10.6	10.6	10.6	10.6	10.6	10.6	10.6	17.1
WITHOUT								5.0	5.0	5.0	5.0	5.0	5.0	5.0	11.0
STATION FACILITY								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH								0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
WITHOUT								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
SIGNALS & TELECOM								0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2
WITH								13.0	13.0	13.0	13.0	13.0	13.0	13.0	14.7
WITHOUT								12.7	12.7	12.7	12.7	12.7	12.7	12.7	14.5
ROLLING STOCKS								9.6	9.6	9.6	9.6	12.9	12.9	12.9	12.9
WITH								9.6	9.6	9.6	9.6	12.9	12.9	12.9	12.9
WITHOUT								-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
ROAD FLYOVER								3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
WITH								3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
WITHOUT															
OPERATING COST DIFF					1.0	2.6	4.2	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.9
PSNL COST DIFF					0.3	0.7	1.1								
WITH	1.3	1.3	1.3	1.3	1.3	1.3	1.3								
WITHOUT	1.3	1.3	1.3	1.3	1.1	0.7	0.3								
FUEL COST DIFF					0.8	2.0	3.1	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.9
WITH	3.9	3.9	3.9	3.9	3.9	3.9	3.9	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.9
WITHOUT	3.9	3.9	3.9	3.9	3.1	2.0	0.8								
TOTAL BENEFIT DIFF				12.7	-46.5	-115.7	-150.0	171.9	172.1	172.3	172.5	172.7	172.9	173.1	182.7
WITH								358.9	369.1	380.0	391.4	403.6	416.6	430.1	453.9
TIME SAVING BENEFIT								174.8	184.9	195.5	206.7	218.6	231.3	244.7	258.9
BENE OF RAILWAY PSNGR								174.8	184.9	195.5	206.7	218.6	231.3	244.7	258.9
BENE OF ROAD VEHICLE								14.8	15.7	16.6	17.5	18.5	19.6	20.8	22.0
MOTORCYCLE								9.3	9.8	10.4	11.0	11.7	12.3	13.0	13.8
SAHLOR								97.5	103.1	109.0	115.3	122.0	129.1	136.6	144.5
SEDAN								6.7	7.1	7.5	7.9	8.3	8.8	9.3	9.9
LIGHT BUS								25.2	26.7	28.2	29.8	31.5	33.3	35.3	37.3
BUS								21.1	22.5	23.8	25.1	26.6	28.1	29.7	31.4
TRUCK								7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
FUEL SAVING BENEFIT								7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT CROSSING															
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE								1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT								175.1	175.1	175.1	175.1	175.1	175.1	175.1	184.5
USAGE OF SPACE								175.1	175.1	175.1	175.1	175.1	175.1	175.1	184.5
FOR COMMERCIAL USE								170.0	170.8	170.8	170.8	170.8	170.8	170.8	179.3
FOR OTHER USE								4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.2
WITHOUT				-12.7	46.5	115.7	150.0	187.1	197.1	207.7	219.0	230.9	243.5	257.0	271.2
TIME SAVING BENEFIT					51.7	109.1	149.6	174.8	184.9	195.5	206.7	218.6	231.3	244.7	258.9
BENE OF ROAD VEHICLE					51.7	109.1	149.6	174.8	184.9	195.5	206.7	218.6	231.3	244.7	258.9
FUEL SAVING BENEFIT				-12.7	-8.7	-3.6	-1.6	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
VEHICLE AT CROSSING				-12.7	-6.6	1.2	4.4	7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT FLYOVER					-2.1	-4.8	-5.9	-7.1	-7.3	-7.5	-7.7	-7.9	-8.1	-8.3	-8.6
ACCIDENT AVOIDANCE BENE					0.3	0.8	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT					5.2	9.5	9.7	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
USAGE OF SPACE					5.2	9.5	9.7	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
FOR COMMERCIAL USE					4.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
FOR OTHER USE					1.2	3.0	3.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
NET FLOW	-15.0	-35.8	-99.6	-24.1	-2.8	-219.8	-102.0	167.2	167.3	167.7	167.9	57.1	57.8	178.4	177.3
EIRR	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
INVESTMENT DIFF															-171.1
WITH	252.7				647.1				80.5	561.2			177.4		-1980.2
CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE	252.7				647.1				80.5	561.2			177.4		576.4 2556.5
WITHOUT	252.7				647.1				80.5	561.2			177.4		-1809.1
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	252.7				647.1				80.5	561.2			177.4		-1809.1 576.4 2385.4
MAINT/OPE COST DIFF	5.5	5.6	5.7	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8
FACILITY MAINT COST DIFF	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
CIVIL WORK WITH	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
WITHOUT	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
STATION FACILITY WITH	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITHOUT	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
SIGNALS & TELECOM WITH	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITHOUT	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
ROLLING STOCKS WITH	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
WITHOUT	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
ROAD FLYOVER WITH	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
WITHOUT	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
OPERATING COST DIFF	2.0	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
PSNL COST DIFF															
WITH															
WITHOUT															
FUEL COST DIFF	2.0	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
WITH	2.0	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
WITHOUT															
TOTAL BENEFIT DIFF	183.0	183.2	183.5	183.7	184.0	184.1	184.3	184.4	184.5	184.7	184.8	184.9	185.1	185.2	185.4
WITH	469.2	485.5	502.7	521.0	540.3	553.7	567.7	582.4	597.6	613.6	630.3	647.7	666.0	685.0	705.0
TIME SAVING BENEFIT BENE OF RAILWAY PSNGR	273.9	289.9	306.9	324.9	343.9	357.2	371.1	385.6	400.7	416.5	433.1	450.4	468.5	487.4	507.1
BENE OF ROAD VEHICLE MOTORCYCLE	273.9	289.9	306.9	324.9	343.9	357.2	371.1	385.6	400.7	416.5	433.1	450.4	468.5	487.4	507.1
SAHLDR	23.2	24.6	26.1	27.6	29.2	30.3	31.5	32.7	33.9	35.2	36.6	38.0	39.5	41.1	42.6
SEDAN	14.6	15.5	16.4	17.3	18.4	19.1	19.8	20.5	21.3	22.2	23.0	23.9	24.9	25.9	26.9
LIGHT BUS	152.9	161.9	171.4	181.4	192.1	199.7	207.6	215.9	224.5	233.6	243.0	252.9	263.3	274.1	285.4
BUS	10.4	11.0	11.7	12.3	13.1	13.6	14.1	14.6	15.2	15.8	16.4	17.1	17.7	18.5	19.2
TRUCK	39.5	41.7	44.2	46.7	49.5	51.3	53.2	55.1	57.2	59.3	61.6	63.9	66.3	68.9	71.5
FUEL SAVING BENEFIT VEHICLE AT CROSSING	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
VEHICLE AT FLYOVER	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
ACCIDENT AVOIDANCE BENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5
FOR OTHER USE	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3
WITHOUT	286.3	302.3	319.2	337.2	356.3	369.6	383.5	398.0	413.1	429.0	445.5	462.8	480.9	499.8	519.6
TIME SAVING BENEFIT BENE OF ROAD VEHICLE	273.9	289.9	306.9	324.9	343.9	357.2	371.1	385.6	400.7	416.5	433.1	450.4	468.5	487.4	507.1
FUEL SAVING BENEFIT VEHICLE AT CROSSING	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
VEHICLE AT FLYOVER	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
ACCIDENT AVOIDANCE BENE	-8.8	-9.0	-9.3	-9.5	-9.8	-9.9	-10.1	-10.2	-10.3	-10.5	-10.6	-10.8	-10.9	-11.0	-11.2
LAND USE BENEFIT FOR COMMERCIAL USE	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
FOR OTHER USE	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
NET FLOW EIRR	177.5	177.6	177.8	178.0	178.2	178.2	178.3	178.3	178.4	178.4	178.4	178.5	178.5	178.5	178.5
	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417	20.417

Appendix 11.4.3 Economic Analysis for Track Elevation Project, State Railway of Thailand (Case-II-3)

(MIL. BANT) PAGE 1 / PART 1

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
INVESTMENT DIFF	19.6	45.6	164.9	137.0	44.1	155.5	-30.2	110.9	107.6	-1.4	17.5	-9.2	-8.3	10.5	
WITH	36.6	132.7	436.6	573.2	652.9	556.5	502.6	907.5	120.2	20.0	31.3	251.0	20.1	24.3	
CIVIL WORK	27.9	102.8	358.8	529.1	529.5	426.4	161.0	136.3	120.2	24.6	23.3	10.1	19.4	13.4	
STATION FACILITY	8.7	29.9	38.0	9.1	28.7	11.6	113.3	15.4		3.3	8.0	16.1	5.6	10.9	
SIGNALS & TELECOM			39.9	39.9											
LAND ACQ & COMP															
ROLLING STOCKS								721.0				224.8			
-SALVAGE VALUE															
WITHOUT	16.9	87.1	271.7	436.2	608.9	401.0	532.8	796.6	12.6	29.3	13.0	260.2	28.4	13.8	
RAILWAY	16.9	63.2	134.3	129.0	231.0	261.7	413.7	796.6	12.6	29.3	13.0	260.2	28.4	13.8	
CIVIL WORK	0.3	33.4	57.7	79.9	108.5	122.9	98.1	21.4	12.6	26.0	5.7	16.7	21.2		
STATION FACILITY	8.6	29.7	36.7	9.1	28.7	22.9	75.3	15.4							
SIGNALS & TELECOM			39.9	39.9	93.8	115.9	246.3	39.0							
LAND ACQ & COMP															
ROLLING STOCKS								721.0				224.8			
-SALVAGE VALUE															
ROAD FLYOVER	23.9	137.4	307.2	377.9	139.3	119.1									
MAINT/OPE COST DIFF					1.1	2.0	4.5	4.2	4.2	4.2	4.2	4.2	4.2	5.0	5.0
FACILITY MAINT COST DIFF								4.8	4.8	4.8	4.8	4.8	4.8	5.7	5.7
CIVIL WORK								7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0
WITH								16.6	16.6	16.6	16.6	16.6	16.6	20.7	20.7
WITHOUT								9.5	9.5	9.5	9.5	9.5	9.5	12.8	12.8
STATION FACILITY								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH								1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1
WITHOUT								0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0
SIGNALS & TELECOM								0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5
WITH								14.1	14.1	14.1	14.1	14.1	14.1	15.8	15.8
WITHOUT								13.5	13.5	13.5	13.5	13.5	13.5	15.3	15.3
ROLLING STOCKS															
WITH								12.1	12.1	12.1	12.1	15.7	15.7	15.7	15.7
WITHOUT								12.1	12.1	12.1	12.1	15.7	15.7	15.7	15.7
ROAD FLYOVER								-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
WITH								3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
WITHOUT															
OPERATING COST DIFF					1.1	2.8	4.5	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
PSHL COST DIFF					0.3	0.7	1.1	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
WITH	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WITHOUT	1.8	1.8	1.8	1.8	1.4	1.2	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
FUEL CGST DIFF					0.9	2.1	3.4	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
WITH	6.0	6.0	6.0	6.0	6.0	6.8	6.0	1.6	1.6	1.7	1.8	1.8	1.9	2.0	2.0
WITHOUT	6.0	6.0	6.0	6.0	5.1	3.8	2.6	1.7	1.8	1.8	1.9	2.0	2.0	2.1	2.2
TOTAL BENEFIT DIFF				12.7	-53.1	-126.6	-166.2	227.8	229.7	232.0	234.0	236.2	238.5	250.3	251.6
WITH								438.0	451.3	465.6	480.3	496.0	512.6	539.5	556.9
TIME SAVING BENEFIT								236.4	249.3	263.3	277.6	293.0	309.2	326.4	343.4
BENE OF RAILWAY PSNGR								13.0	13.5	14.3	14.7	15.3	15.9	16.6	16.0
BENE OF ROAD VEHICLE								223.3	235.8	249.0	262.9	277.7	293.3	309.9	327.4
MOTORCYCLE								20.0	21.1	22.3	23.5	24.8	26.2	27.7	29.1
SAHLER								11.4	12.1	12.8	13.5	14.3	15.1	15.9	16.6
SEDAN								124.2	131.2	138.5	146.3	154.5	163.2	172.4	182.2
LIGHT BUS								8.2	8.7	9.2	9.7	10.2	10.8	11.4	12.1
BUS								31.0	33.5	35.4	37.4	39.5	41.7	44.1	46.6
TRUCK								27.7	29.2	30.8	32.5	34.4	36.3	38.3	40.5
FUEL SAVING BENEFIT								11.5	11.8	12.2	12.5	12.8	13.2	13.6	14.0
VEHICLE AT CROSSING								11.5	11.8	12.2	12.5	12.8	13.2	13.6	14.0
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE								2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
LAND USE BENEFIT								188.0	180.0	188.0	188.0	188.0	188.0	197.4	197.4
USAGE OF SPACE								189.0	188.0	188.0	188.0	188.0	188.0	197.4	197.4
FOR COMMERCIAL USE								178.3	178.3	178.3	178.3	178.3	178.3	186.8	186.8
FOR OTHER USE								9.8	9.8	9.8	9.8	9.8	9.8	10.7	10.7
WITHOUT				-12.7	53.1	126.6	166.2	210.3	221.6	233.6	246.3	259.8	274.1	289.2	305.3
TIME SAVING BENEFIT					56.4	119.9	156.9	198.0	209.4	221.4	234.1	247.5	261.8	276.9	293.0
BENE OF ROAD VEHICLE					56.4	119.9	156.9	198.0	209.4	221.4	234.1	247.5	261.8	276.9	293.0
FUEL SAVING BENEFIT				-12.7	-8.7	-3.6	-1.6	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
VEHICLE AT CROSSING				-12.7	-6.6	1.2	4.4	7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT FLYOVER					-2.1	-4.8	-5.9	-7.1	-7.3	-7.5	-7.7	-7.9	-8.1	-8.3	-8.6
ACCIDENT AVOIDANCE BENE					0.3	0.8	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT					5.2	9.5	9.7	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
USAGE OF SPACE					5.2	9.5	9.7	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
FOR COMMERCIAL USE					4.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
FOR OTHER USE					1.2	3.0	3.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
NET FLOW	-19.6	-45.6	-164.9	-124.3	-98.3	-284.8	-140.5	112.7	117.9	229.1	212.3	241.2	242.6	234.8	246.6
EIRR	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
INVESTMENT DIFF															-318.0
WITH	268.8				808.1				96.6	561.2			193.5		-2235.0
CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & CONP ROLLING STOCKS -SALVAGE VALUE	268.8				808.1				96.6	561.2			193.5		576.4 2611.4
WITHOUT	268.8				808.1				96.6	561.2			193.5		-1917.0
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & CONP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	268.8				808.1				96.6	561.2			193.5		576.4 2493.4
MAINT/OPE COST DIFF	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
FACILITY MAINTY COST DIFF	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
CIVIL WORK WITH	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
WITHOUT	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
STATION FACILITY WITH	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
WITHOUT	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
SIGNALS & TELECOM WITH	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
WITHOUT	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ROLLING STOCKS WITH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
WITHOUT	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
ROAD FLYOVER WITH	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3
WITHOUT	20.2	20.2	20.2	20.2	24.6	24.6	24.6	24.6	24.6	34.1	34.1	34.1	34.1	34.1	43.8
ROAD FLYOVER WITH	20.2	20.2	20.2	20.2	24.6	24.6	24.6	24.6	24.6	34.1	34.1	34.1	34.1	34.1	43.8
WITHOUT	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
OPERATING COST DIFF	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
PSHL COST DIFF WITH	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
WITHOUT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
FUEL COST DIFF WITH	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
WITHOUT	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
TOTAL BENEFIT DIFF	254.8	256.9	259.1	261.4	264.7	267.1	269.8	272.5	275.3	278.3	281.6	284.8	288.3	292.0	295.8
WITH	577.1	597.2	618.5	641.0	665.8	682.2	699.4	717.2	735.8	755.3	775.7	796.8	818.9	842.0	866.0
TIME SAVING BENEFIT BENE OF RAILWAY PSNGR	363.2	382.9	401.8	425.9	450.3	466.5	483.5	501.1	519.4	538.7	558.8	579.7	601.6	624.5	648.3
BENE OF ROAD VEHICLE MOTORCYCLE	17.3	17.3	17.3	17.3	18.3	18.6	19.2	19.5	19.9	20.3	20.9	21.3	21.7	22.3	22.7
SAHLOK	346.0	365.7	386.5	408.6	432.0	447.8	464.3	481.5	499.5	518.3	537.9	558.4	579.8	602.2	625.6
SEDAN	30.9	32.7	34.5	36.5	38.6	40.0	41.4	43.0	44.5	46.2	47.9	49.8	51.7	53.7	55.7
LIGHT BUS	17.8	18.8	19.9	21.1	22.3	23.1	23.9	24.8	25.7	26.6	27.6	28.7	29.7	30.9	32.0
BUS	192.6	203.5	215.1	227.5	240.5	249.5	258.9	268.6	278.9	289.5	300.7	312.3	324.5	337.2	350.5
TRUCK	12.8	13.5	14.3	15.1	15.9	16.5	17.1	17.7	18.4	19.1	19.8	20.5	21.3	22.1	23.0
FUEL SAVING BENEFIT VEHICLE AT CROSSING	49.2	52.0	54.9	58.1	61.4	63.5	65.7	68.0	70.4	72.9	75.5	78.3	81.1	84.1	87.2
VEHICLE AT FLYOVER	42.8	45.2	47.7	50.5	53.3	55.3	57.3	59.4	61.6	63.9	66.4	68.9	71.5	74.3	77.2
ACCIDENT AVOIDANCE BENE	14.3	14.7	15.2	15.6	16.0	16.2	16.4	16.7	16.9	17.1	17.3	17.6	17.8	18.0	18.3
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE FOR OTHER USE	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
WITHOUT	322.3	340.3	359.4	379.7	401.1	415.1	429.6	444.7	460.5	477.0	494.1	512.0	530.6	550.0	570.3
TIME SAVING BENEFIT BENE OF ROAD VEHICLE	309.9	328.0	347.0	367.3	388.7	402.7	417.2	432.3	448.1	464.5	481.7	499.5	518.1	537.6	557.8
FUEL SAVING BENEFIT VEHICLE AT CROSSING	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
VEHICLE AT FLYOVER	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
ACCIDENT AVOIDANCE BENE	-6.8	-9.0	-9.3	-9.5	-9.8	-9.9	-10.1	-10.2	-10.3	-10.5	-10.6	-10.8	-10.9	-11.0	-11.2
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE FOR OTHER USE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
NET FLOW	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
EIRR	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
NET FLOW	249.8	251.9	254.1	256.4	259.7	262.1	264.8	267.5	270.3	273.3	276.6	279.8	283.3	287.0	608.8
EIRR	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334	16.334

Appendix 11.4.4 Economic Analysis for Track Elevation Project,
State Railway of Thailand (Case-II-2)

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	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
INVESTMENT DIFF	16.0	32.3	94.3	36.7	-48.4	79.7	-56.1	114.8	115.7	7.6	-0.5	-3.6	-1.4	-2.7	
WITH	32.9	119.4	366.0	472.9	560.4	480.8	476.7	911.5	128.3	37.0	13.2	256.6	27.0	11.1	
CIVIL WORK	24.1	88.9	269.3	424.4	438.6	356.5	123.3	136.1	128.3	33.6	5.7	16.7	21.3		
STATION FACILITY	8.9	30.5	36.8	8.6	28.7	11.6	113.3	15.4							
SIGNALS & TELECOM			39.9	39.9	93.1	112.7	240.2	39.1		3.3	7.5	15.1	5.7	11.1	
LAND ACQ & COMP															
ROLLING STOCKS								721.0				224.6			
-SALVAGE VALUE															
WITHOUT	16.9	87.1	271.7	436.2	608.9	401.0	532.0	796.6	12.6	29.3	13.8	260.2	28.4	13.8	
RAILWAY	16.9	63.2	134.3	129.0	231.0	261.7	413.7	796.6	12.6	29.3	13.8	260.2	28.4	13.8	
CIVIL WORK	8.3	33.4	57.7	79.9	108.5	122.9	94.1	21.4	12.6	26.0	5.7	16.7	21.2		
STATION FACILITY					20.7	22.9	75.3	15.4							
SIGNALS & TELECOM	8.6	29.7	36.7	9.1	93.8	115.9	244.3	39.0		3.3	8.0	18.7	7.2	13.8	
LAND ACQ & COMP			39.9	39.9											
ROLLING STOCKS								721.0				224.6			
-SALVAGE VALUE															
ROAD FLYOVER		23.9	137.4	307.2	377.9	139.3	119.1								
MAINT/OPER COST DIFF					1.1	2.8	4.5	3.7	3.8	3.8	3.9	4.0	4.0	5.5	5.6
FACILITY MAINT COST DIFF								2.1	2.1	2.1	2.1	2.1	2.1	3.5	3.5
CIVIL WORK								4.8	4.8	4.8	4.8	4.8	4.8	6.4	6.4
WITH								14.4	14.4	14.4	14.4	14.4	14.4	19.2	19.2
WITHOUT								9.5	9.5	9.5	9.5	9.5	9.5	12.8	12.8
STATION FACILITY								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH								1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1
WITHOUT								0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0
SIGNALS & TELECOM								0.1	0.1	0.1	0.1	0.1	0.1		
WITH								13.6	13.6	13.6	13.6	13.6	13.6	15.2	15.2
WITHOUT								13.5	13.5	13.5	13.5	13.5	13.5	15.3	15.3
ROLLING STOCKS															
WITH								12.1	12.1	12.1	12.1	15.7	15.7	15.7	15.7
WITHOUT								12.1	12.1	12.1	12.1	15.7	15.7	15.7	15.7
ROAD FLYOVER								-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
WITH								3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
WITHOUT															
OPERATING COST DIFF					1.1	2.8	4.5	1.6	1.6	1.7	1.8	1.8	1.9	2.0	2.0
PSRL COST DIFF					0.3	0.7	1.1								
WITH	1.3	1.3	1.3	1.3	1.3	1.3	1.3								
WITHOUT	1.3	1.3	1.3	1.3	1.1	0.7	0.3								
FUEL COST DIFF					0.9	2.1	3.4	1.6	1.6	1.7	1.8	1.8	1.9	2.0	2.0
WITH	4.3	4.3	4.3	4.3	4.3	4.3	4.3	1.6	1.6	1.7	1.8	1.8	1.9	2.0	2.0
WITHOUT	4.3	4.3	4.3	4.3	3.4	2.1	0.9								
TOTAL BENEFIT DIFF				12.7	-53.1	-126.6	-166.2	184.9	185.6	186.6	187.2	188.0	188.8	199.1	198.7
WITH								395.2	407.2	420.2	433.5	447.8	462.9	488.3	504.0
TIME SAVING BENEFIT								211.1	222.9	235.7	248.8	262.8	277.7	293.5	309.0
BENE OF RAILWAY PSNGR								13.0	15.5	16.3	14.7	15.3	15.9	16.6	16.0
BENE OF ROAD VEHICLE								198.0	209.4	221.4	234.1	247.5	261.8	276.9	293.0
MOTORCYCLE								16.8	17.8	18.8	19.9	21.0	22.3	23.5	24.9
SAHLOW								10.6	11.2	11.8	12.5	13.2	14.0	14.8	15.7
SEDAN								110.3	116.6	123.3	130.4	137.9	145.9	154.4	163.3
LIGHT BUS								7.6	8.0	8.4	8.9	9.4	10.0	10.5	11.1
BUS								28.7	30.3	32.1	33.9	35.8	37.9	40.1	42.4
TRUCK								24.1	25.5	26.9	28.5	30.1	31.8	33.7	35.6
FUEL SAVING BENEFIT								7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT CROSSING								7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE								1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT								175.1	175.1	175.1	175.1	175.1	175.1	184.5	184.5
USAGE OF SPACE								175.1	175.1	175.1	175.1	175.1	175.1	184.5	184.5
FOR COMMERCIAL USE								170.8	170.8	170.8	170.8	170.8	170.8	179.3	179.3
FOR OTHER USE								4.3	4.3	4.3	4.3	4.3	4.3	5.2	5.2
WITHOUT				-12.7	53.1	126.6	166.2	210.3	221.6	233.6	246.3	259.0	274.1	289.2	305.3
TIME SAVING BENEFIT					56.4	119.9	156.9	198.0	209.4	221.4	234.1	247.5	261.8	276.9	293.0
BENE OF ROAD VEHICLE					56.4	119.9	156.9	198.0	209.4	221.4	234.1	247.5	261.8	276.9	293.0
FUEL SAVING BENEFIT				-12.7	-8.7	-3.6	-1.6	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
VEHICLE AT CROSSING				-12.7	-6.6	1.2	4.4	7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT FLYOVER					-2.1	-4.8	-5.9	-7.1	-7.3	-7.5	-7.7	-7.9	-8.1	-8.3	-8.6
ACCIDENT AVOIDANCE BENE					0.3	0.8	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT					5.2	9.5	9.7	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
USAGE OF SPACE					5.2	9.5	9.7	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
FOR COMMERCIAL USE					4.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
FOR OTHER USE					1.2	3.0	3.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
NET FLOW	-16.0	-32.3	-94.3	-24.0	-5.8	-209.1	-114.6	66.4	66.1	175.1	183.9	187.6	186.2	196.3	193.1
EIRR	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
INVESTMENT DIFF															-161.3
WITH	268.8				808.1				96.6	561.2			193.5		-2078.4
CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE	268.8				808.1				96.6	561.2			193.5		576.4 2654.7
WITHOUT	260.0				800.1				96.6	561.2			193.5		-1917.0
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	268.8				808.1				96.6	561.2			193.5		-1917.0
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	268.8				808.1				96.6	561.2			193.5		576.4 2493.4
MAINT/OPE COST DIFF	5.7	5.7	5.0	5.9	6.0	6.1	6.2	6.2	6.3	6.4	6.5	6.6	6.7	6.9	7.0
FACILITY MAINT COST DIFF	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
CIVIL WORK WITH	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
WITHOUT	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
STATION FACILITY WITH	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITHOUT	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SIGNALS & TELECOM WITH	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
WITHOUT	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
ROLLING STOCKS WITH	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3
WITHOUT	20.2	20.2	20.2	20.2	24.6	24.6	24.6	24.6	24.6	34.1	34.1	34.1	34.1	34.1	43.8
ROAD FLYOVER WITH	20.2	20.2	20.2	20.2	24.6	24.6	24.6	24.6	24.6	34.1	34.1	34.1	34.1	34.1	43.8
WITHOUT	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
OPERATING COST DIFF	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
PSKL COST DIFF WITH															
WITHOUT															
FUEL COST DIFF WITH	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
WITHOUT	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
TOTAL BENEFIT DIFF	200.2	200.5	200.8	201.0	202.3	202.6	203.4	203.9	204.4	205.0	205.7	206.2	206.8	207.5	208.1
WITH	522.5	540.8	560.2	580.7	603.4	617.8	633.0	648.7	664.9	682.0	699.8	718.2	737.4	757.5	776.3
TIME SAVING BENEFIT BENE OF RAILWAY PSNGR	327.2	365.2	364.4	364.6	407.0	421.3	436.4	451.9	468.0	484.9	502.6	520.0	539.9	559.9	580.5
BENE OF ROAD VEHICLE	17.3	17.3	17.3	17.3	18.3	18.6	19.2	19.5	19.9	20.3	20.9	21.3	21.7	22.3	22.7
MOTORCYCLE	309.9	320.0	347.0	367.3	386.7	402.7	417.2	432.3	448.1	454.5	481.7	499.5	516.1	537.6	557.8
SMALLR	26.4	27.9	29.5	31.3	33.1	34.3	35.5	36.7	38.0	39.4	40.8	42.3	43.8	45.4	47.1
SEDAN	16.6	17.5	18.5	19.6	20.8	21.5	22.3	23.1	23.9	24.8	25.7	26.6	27.6	28.6	29.6
LIGHT BUS	172.8	182.9	193.5	204.8	216.8	224.8	233.1	241.7	250.7	260.2	270.0	280.2	290.8	302.0	313.6
BUS	11.8	12.5	13.2	13.9	14.7	15.3	15.8	16.4	17.0	17.6	18.2	18.9	19.6	20.4	21.1
TRUCK	44.8	47.4	50.1	53.0	56.1	58.0	60.0	62.0	64.2	66.4	68.7	71.1	73.6	76.2	78.9
FUEL SAVING BENEFIT VEHICLE AT CROSSING	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
VEHICLE AT FLYOVER	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
ACCIDENT AVOIDANCE BENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE FOR OTHER USE	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5
WITHOUT	322.3	340.3	359.4	379.7	401.1	415.1	429.6	444.7	460.5	477.0	494.1	512.0	530.6	550.0	570.3
TIME SAVING BENEFIT BENE OF ROAD VEHICLE	309.9	328.0	347.0	367.3	388.7	402.7	417.2	432.3	448.1	464.5	481.7	499.5	518.1	537.6	557.8
FUEL SAVING BENEFIT VEHICLE AT CROSSING	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
VEHICLE AT FLYOVER	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
ACCIDENT AVOIDANCE BENE	-8.8	-9.0	-9.3	-9.5	-9.8	-9.9	-10.1	-10.2	-10.3	-10.5	-10.6	-10.8	-10.9	-11.0	-11.2
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE FOR OTHER USE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
NET FLOW EIRR	194.6	194.7	195.0	195.2	196.3	196.7	197.3	197.7	198.1	198.6	199.2	199.6	200.1	200.7	362.4
	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092	20.092

Appendix 11.4.5 Economic Analysis for Track Elevation Project,
State Railway of Thailand (Case-I-3)

(MIL. BAHT) PAGE 1 /PART 1

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
INVESTMENT DIFF	18.4	73.6	302.1	444.6	421.7	313.6	88.5	5.0	-0.1	-0.2	-0.7	110.6	111.3	-10.4	0.4
WITH	33.6	129.2	370.0	496.4	547.2	519.7	512.6	649.9	75.0	24.0	20.3	376.0	127.5	23.4	0.4
CIVIL WORK	25.0	100.1	306.5	460.8	458.4	402.7	192.9	67.7	71.7	20.7	10.6	118.9	121.1	12.7	
STATION FACILITY					1.2	4.1	94.7	1.1			1.1	14.0			
SIGNALS & TELECOM	8.7	29.1	37.5	9.6	87.6	112.8	225.0	5.1	3.3	3.3	16.6	35.2	6.5	10.7	0.4
LAND ACQ & COMP			26.1	26.1											
ROLLING STOCKS								576.1				208.7			
-SALVAGE VALUE															
WITHOUT	15.2	55.6	67.9	51.8	125.5	206.1	424.1	644.9	75.1	24.2	29.0	266.2	16.3	33.8	
RAILWAY	15.2	55.6	67.9	51.8	125.5	206.1	424.1	644.9	75.1	24.2	29.0	266.2	16.3	33.8	
CIVIL WORK	6.6	26.7	5.3	16.6	37.0	92.2	136.5	67.7	71.8	20.9	10.8	7.4	9.2	20.3	
STATION FACILITY					0.6	4.1	66.6	1.1			1.1	14.0			
SIGNALS & TELECOM	8.6	28.9	36.5	9.1	87.9	109.8	221.0		3.3	3.3	17.1	36.1	7.0	13.6	
LAND ACQ & COMP			26.1	26.1											
ROLLING STOCKS								576.1				208.7			
-SALVAGE VALUE															
ROAD FLYOVER															
MAINT/OPE COST DIFF								2.8	2.7	2.5	2.4	2.2	2.0	1.9	2.2
FACILITY MAINT COST DIFF								8.7	8.7	8.7	8.7	8.7	8.7	8.7	9.2
CIVIL WORK								7.8	7.8	7.8	7.8	7.8	7.8	7.8	8.3
WITH								12.8	12.8	12.8	12.8	12.8	12.8	12.8	19.3
WITHOUT								5.0	5.0	5.0	5.0	5.0	5.0	5.0	11.0
STATION FACILITY								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH								0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.4
WITHOUT								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
SIGNALS & TELECOM								0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
WITH								13.4	13.4	13.4	13.4	13.4	13.4	13.4	15.1
WITHOUT								12.7	12.7	12.7	12.7	12.7	12.7	12.7	14.5
ROLLING STOCKS								9.6	9.6	9.6	9.6	12.9	12.9	12.9	12.9
WITH								9.6	9.6	9.6	9.6	12.9	12.9	12.9	12.9
WITHOUT															
ROAD FLYOVER															
WITH															
WITHOUT															
OPERATING COST DIFF								-5.9	-6.0	-6.1	-6.3	-6.5	-6.6	-6.8	-7.0
PSNL COST DIFF								-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
WITH	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
WITHOUT	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
FUEL COST DIFF								-4.0	-4.2	-4.3	-4.4	-4.6	-4.8	-4.9	-5.1
WITH	5.5	5.5	5.5	5.5	5.5	5.5	5.5	1.5	1.5	1.6	1.7	1.8	1.8	1.8	1.9
WITHOUT	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.7	5.9	6.1	6.3	6.5	6.7	7.0
TOTAL BENEFIT DIFF								401.8	413.2	425.4	438.2	451.7	466.1	481.3	506.8
WITH								401.8	413.2	425.4	438.2	451.7	466.1	481.3	506.8
TIME SAVING BENEFIT								200.1	211.3	223.1	235.5	248.6	262.8	277.6	293.3
BENE OF RAILWAY PSNGR								18.0	19.0	20.0	21.1	22.3	23.6	24.9	26.3
BENE OF ROAD VEHICLE								10.2	10.8	11.4	12.0	12.7	13.4	14.2	15.0
MOTORCYCLE								111.4	117.6	124.2	131.2	138.5	146.3	154.6	163.4
SEDAN								7.4	7.8	8.2	8.7	9.2	9.7	10.2	10.8
LIGHT BUS								20.3	29.9	31.6	33.3	35.2	37.2	39.3	41.5
BUS								24.8	26.2	27.7	29.2	30.8	32.6	34.4	36.3
TRUCK								11.5	11.8	12.2	12.5	12.8	13.2	13.6	14.0
FULL SAVING BENEFIT								11.5	11.8	12.2	12.5	12.8	13.2	13.6	14.0
VEHICLE AT CROSSING															
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE								2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
LAND USE BENEFIT								188.0	188.0	188.0	188.0	188.0	188.0	188.0	188.0
USAGE OF SPACE								188.0	188.0	188.0	188.0	188.0	188.0	188.0	188.0
FOR COMMERCIAL USE								178.3	178.3	178.3	178.3	178.3	178.3	178.3	186.8
FOR OTHER USE								9.8	9.8	9.8	9.8	9.8	9.8	9.8	10.7
WITHOUT															
TIME SAVING BENEFIT															
BENE OF ROAD VEHICLE															
FUEL SAVING BENEFIT															
VEHICLE AT CROSSING															
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE															
LAND USE BENEFIT															
USAGE OF SPACE															
FOR COMMERCIAL USE															
FOR OTHER USE															
NET FLOW	-18.4	-73.6	-302.1	-444.6	-421.7	-313.6	-88.5	394.0	410.7	423.0	436.5	330.9	352.8	489.9	504.1
EIRR	17.671	17.671	17.671	17.671	17.671	17.671	17.671	17.671	17.671	17.671	17.671	17.671	17.671	17.671	17.671

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
INVESTMENT DIFF															-797.9
WITH	252.7				647.1				80.5	561.2			177.4		-2137.4
CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE	252.7				647.1				80.5	561.2			177.4		576.4 2713.8
WITHOUT	252.7				647.1				80.5	561.2			177.4		-1339.5
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	252.7				647.1				80.5	561.2			177.4		576.4 1915.9
MAINT/OPE COST DIFF	2.0	1.8	1.6	1.4	1.2	1.0	0.8	0.6	0.3	0.1	-0.2	-0.4	-0.7	-1.0	-1.3
FACILITY MAINT COST DIFF	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
CIVIL WORK WITH	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
WITHOUT	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
STATION FACILITY WITH	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITHOUT	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
SIGNALS & TELECOM WITH	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
WITHOUT	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
ROLLING STOCKS WITH	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
WITHOUT	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
ROAD FLYOVER WITH															
WITHOUT															
OPERATING COST DIFF	-7.1	-7.3	-7.5	-7.7	-7.9	-8.1	-8.4	-8.6	-8.8	-9.1	-9.3	-9.6	-9.9	-10.1	-10.4
PSHL COST DIFF WITH	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
WITHOUT	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
FUEL COST DIFF WITH	-5.3	-5.5	-5.7	-5.9	-6.1	-6.3	-6.5	-6.7	-7.0	-7.2	-7.5	-7.7	-8.0	-8.3	-8.6
WITHOUT	2.0	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
TOTAL BENEFIT DIFF	523.8	541.9	561.0	581.3	602.7	618.1	634.1	650.9	668.5	686.9	706.2	726.3	747.4	769.5	792.7
WITH	523.8	541.9	561.0	581.3	602.7	618.1	634.1	650.9	668.5	686.9	706.2	726.3	747.4	769.5	792.7
TIME SAVING BENEFIT BENE OF RAILWAY PSNGR	310.0	327.6	346.4	366.2	387.2	402.4	418.2	434.8	452.1	470.3	489.3	509.3	530.1	552.0	574.9
BENE OF ROAD VEHICLE MOTORCYCLE	27.0	29.4	31.0	32.8	34.7	36.0	37.4	38.9	40.5	42.1	43.8	45.6	47.4	49.4	51.4
SAHLOR	15.9	16.8	17.7	18.0	19.9	20.6	21.4	22.3	23.1	24.1	25.0	26.0	27.1	28.2	29.3
SEDAN	172.7	182.5	193.0	204.1	215.8	224.4	233.4	242.8	252.6	262.9	273.7	285.1	296.9	309.3	322.3
LYGHT BUS	11.4	12.1	12.7	13.5	14.2	14.8	15.4	16.0	16.6	17.3	18.0	18.7	19.4	20.2	21.1
BUS	43.8	46.3	49.0	51.8	54.7	56.9	58.9	61.2	63.4	65.9	68.4	71.0	73.8	76.7	79.8
TRUCK	38.4	40.6	42.9	45.3	47.9	49.7	51.7	53.7	55.9	58.1	60.5	62.9	65.5	68.2	71.0
FUEL SAVING BENEFIT VEHICLE AT CROSSING	14.3	14.7	15.2	15.6	16.0	16.2	16.4	16.7	16.9	17.1	17.3	17.6	17.8	18.0	18.3
VEHICLE AT FLYOVER	14.3	14.7	15.2	15.6	16.0	16.2	16.4	16.7	16.9	17.1	17.3	17.6	17.8	18.0	18.3
ACCIDENT AVOIDANCE BENE	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
LAND USE BENEFIT USAGE OF SPACE	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4
FOR COMMERCIAL USE	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8
FOR OTHER USE	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
WITHOUT															
TIME SAVING BENEFIT BENE OF ROAD VEHICLE															
FUEL SAVING BENEFIT VEHICLE AT CROSSING															
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE															
LAND USE BENEFIT USAGE OF SPACE															
FOR COMMERCIAL USE															
FOR OTHER USE															
NET FLOW EIRR	521.8 17.671	540.1 17.671	559.4 17.671	579.8 17.671	601.5 17.671	617.1 17.671	633.4 17.671	650.4 17.671	660.2 17.671	686.8 17.671	706.3 17.671	726.8 17.671	748.1 17.671	770.5 17.671	1591.8 17.671

Appendix 11.4.6 Economic Analysis for Track Elevation Project, State Railway of Thailand (Case-I-2)

(MIL. BART) PAGE 1 /PART 1

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
INVESTMENT DIFF	15.0	59.7	232.0	344.0	331.1	240.8	66.9	0.1	0.1	-0.1	-0.2	110.8	110.2	-10.2	
WITH	30.2	115.3	299.9	395.8	456.7	466.9	691.0	645.0	75.2	24.1	28.8	377.0	126.5	23.6	
CIVIL WORK	21.3	85.6	237.1	361.2	367.5	332.7	175.1	67.8	71.9	20.8	10.6	118.6	120.8	12.7	
STATION FACILITY					1.3	4.1	94.7	1.1			1.1	14.0			
SIGNALS & TELECOM	8.9	29.7	36.8	8.6	87.9	110.0	221.3		3.3	3.3	17.1	35.7	5.6	10.9	
LAND ACQ & COMP			26.1	26.1											
ROLLING STOCKS								576.1				208.7			
-SALVAGE VALUE															
WITHOUT	15.2	55.6	67.9	51.8	125.5	206.1	424.1	644.9	75.1	24.2	29.0	266.2	16.3	33.8	
RAILWAY	15.2	55.6	67.9	51.8	125.5	206.1	424.1	644.9	75.1	24.2	29.0	266.2	16.3	33.8	
CIVIL WORK	6.6	26.7	5.3	16.6	37.0	92.2	136.5	67.7	71.8	20.9	10.8	7.4	9.2	20.3	
STATION FACILITY					0.6	4.1	66.6	1.1			1.1	14.0			
SIGNALS & TELECOM	8.6	20.9	36.5	9.1	87.9	109.8	221.0		3.3	3.3	17.1	36.1	7.0	13.6	
LAND ACQ & COMP			26.1	26.1											
ROLLING STOCKS								576.1				200.7			
-SALVAGE VALUE															
ROAD FLYOVER															
MAINT/OPE COST DIFF								2.3	2.3	2.2	2.1	2.0	1.9	1.8	2.1
FACILITY MAINT COST DIFF								6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.5
CIVIL WORK								5.6	5.6	5.6	5.6	5.6	5.6	5.6	6.2
WITH								10.6	10.6	10.6	10.6	10.6	10.6	10.6	17.1
WITHOUT								5.0	5.0	5.0	5.0	5.0	5.0	5.0	11.0
STATION FACILITY								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH								0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
WITHOUT								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
SIGNALS & TELECOM								0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2
WITH								13.0	13.0	13.0	13.0	13.0	13.0	13.0	14.7
WITHOUT								12.7	12.7	12.7	12.7	12.7	12.7	12.7	14.5
ROLLING STOCKS															
WITH								9.6	9.6	9.6	9.6	12.9	12.9	12.9	12.9
WITHOUT								9.6	9.6	9.6	9.6	12.9	12.9	12.9	12.9
ROAD FLYOVER															
WITH															
WITHOUT															
OPERATING COST DIFF								-3.8	-3.9	-3.9	-4.0	-4.1	-4.2	-4.3	-4.4
PSNL COST DIFF								-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
WITH	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
WITHOUT	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
FUEL COST DIFF								-2.4	-2.5	-2.6	-2.7	-2.8	-2.9	-3.0	-3.1
WITH	3.9	3.9	3.9	3.9	3.9	3.9	3.9	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.9
WITHOUT	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.2	4.3	4.5	4.7	4.8	5.0
TOTAL BENEFIT DIFF								358.9	369.1	380.0	391.4	403.6	416.4	430.1	453.9
WITH								358.9	369.1	380.0	391.4	403.6	416.4	430.1	453.9
TIME SAVING BENEFIT								174.8	184.9	195.5	206.7	218.6	231.3	244.7	258.9
BENE OF RAILWAY PSNGR															
BENE OF ROAD VEHICLE								174.8	184.9	195.5	206.7	218.6	231.3	244.7	258.9
MOTORCYCLE								14.8	15.7	16.6	17.5	18.5	19.6	20.8	22.6
SANTOR								9.3	9.0	10.4	11.0	12.7	12.3	13.0	13.0
SEDAN								97.5	103.1	109.0	115.3	122.0	129.1	136.6	144.5
LIGHT BUS								6.7	7.1	7.5	7.9	8.3	8.8	9.3	9.9
BUS								25.2	26.7	28.2	29.8	31.5	33.3	35.3	37.3
TRUCK								21.3	22.5	23.8	25.1	26.6	28.1	29.7	31.4
FUEL SAVING BENEFIT								7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT CROSSING								7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE								1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT								175.1	175.1	175.1	175.1	175.1	175.1	175.1	184.5
USAGE OF SPACE								175.1	175.1	175.1	175.1	175.1	175.1	175.1	184.5
FOR COMMERCIAL USE								170.8	170.8	170.8	170.8	170.8	170.8	170.8	179.3
FOR OTHER USE								4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.2
WITHOUT															
TIME SAVING BENEFIT															
BENE OF ROAD VEHICLE															
FUEL SAVING BENEFIT															
VEHICLE AT CROSSING															
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE															
LAND USE BENEFIT															
USAGE OF SPACE															
FOR COMMERCIAL USE															
FOR OTHER USE															
NET FLOW	-15.0	-59.7	-232.0	-344.0	-331.1	-240.8	-66.9	356.5	366.8	377.9	389.5	401.8	414.3	426.8	439.5
EIRR	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
INVESTMENT DIFF	=====														-640.7
WITH	252.7				647.1				80.5	561.2			177.4		-1980.2
CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & CONP ROLLING STOCKS -SALVAGE VALUE	252.7				647.1				80.5	561.2			177.4		576.4 2556.5
WITHOUT	252.7				647.1				80.5	561.2			177.4		-1339.5
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & CONP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	252.7				647.1				80.5	561.2			177.4		576.4 1915.9
MAINT/OPE COST DIFF	2.0	1.9	1.0	1.6	1.5	1.4	1.3	1.1	1.0	0.8	0.7	0.5	0.4	0.2	
FACILITY MAINT COST DIFF	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
CIVIL WORK	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
WITH	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
WITHOUT	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
STATION FACILITY	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
WITHOUT	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
SIGNALS & TELECOM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
WITHOUT	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
ROLLING STOCKS															
WITH	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
WITHOUT	17.1	17.1	17.1	17.1	21.3	21.3	21.3	21.3	21.3	30.8	30.8	30.8	30.8	30.8	40.4
ROAD FLYOVER															
WITH															
WITHOUT															
OPERATING COST DIFF	-4.5	-4.7	-4.8	-4.9	-5.0	-5.2	-5.3	-5.4	-5.6	-5.7	-5.9	-6.0	-6.2	-6.3	-6.5
PSHL COST DIFF	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
WITH	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
WITHOUT	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
FUEL COST DIFF	-3.2	-3.3	-3.5	-3.6	-3.7	-3.8	-4.0	-4.1	-4.2	-4.4	-4.5	-4.7	-4.9	-5.0	-5.2
WITH	2.0	2.0	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
WITHOUT	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.1	7.3	7.6	7.9	8.2	8.4
TOTAL BENEFIT DIFF	469.2	485.5	502.7	521.0	540.3	557.7	567.7	582.6	597.6	613.6	630.3	647.7	666.0	685.0	705.0
WITH	469.2	485.5	502.7	521.0	540.3	557.7	567.7	582.6	597.6	613.6	630.3	647.7	666.0	685.0	705.0
TIME SAVING BENEFIT	273.9	289.9	306.9	324.9	343.9	357.2	371.1	385.6	400.7	416.5	433.1	450.4	468.5	487.4	507.1
BENE OF RAILWAY POWER	273.9	289.9	306.9	324.9	343.9	357.2	371.1	385.6	400.7	416.5	433.1	450.4	468.5	487.4	507.1
BENE OF ROAD VEHICLE	23.2	24.6	26.1	27.6	29.2	30.5	31.5	32.7	33.9	35.2	36.6	38.0	39.5	41.1	42.8
MOTORCYCLE	14.6	15.5	16.4	17.3	18.4	19.1	19.8	20.5	21.3	22.2	23.0	23.9	24.9	25.9	26.9
SAILOR	152.9	161.9	171.4	181.4	192.1	199.7	207.6	215.9	224.5	233.6	243.0	252.9	263.3	274.1	285.4
SEDAN	10.4	11.0	11.7	12.3	13.1	13.6	14.1	14.6	15.2	15.8	16.4	17.1	17.7	18.5	19.2
LIGHT BUS	39.5	41.7	44.2	46.7	49.5	51.3	53.2	55.1	57.2	59.3	61.6	63.9	66.3	68.9	71.5
BUS	33.3	35.2	37.3	39.4	41.7	43.3	45.0	46.7	48.5	50.4	52.4	54.5	56.7	58.9	61.3
TRUCK															
FUEL SAVING BENEFIT	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
VEHICLE AT CROSSING	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5
USAGE OF SPACE	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5
FOR COMMERCIAL USE	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3	179.3
FOR OTHER USE	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
WITHOUT															
TIME SAVING BENEFIT															
BENE OF ROAD VEHICLE															
FUEL SAVING BENEFIT															
VEHICLE AT CROSSING															
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE															
LAND USE BENEFIT															
USAGE OF SPACE															
FOR COMMERCIAL USE															
FOR OTHER USE															
NET FLOW	467.2	483.6	500.9	519.3	538.0	552.3	566.5	581.2	596.7	612.8	629.6	647.2	665.6	684.0	1345.6
ERR	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338	19.338

Appendix 11.4.7 Economic Analysis for Track Elevation Project,
State Railway of Thailand (Case-II-3)

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	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
INVESTMENT DIFF	19.6	69.5	302.3	444.2	422.0	294.0	88.9	110.9	107.6	-1.4	17.5	-9.2	-8.1	10.5	
WITH	36.6	132.7	436.6	573.2	652.9	556.5	502.6	907.5	120.2	28.0	31.3	251.0	20.1	24.3	
CIVIL WORK	27.9	102.8	358.6	524.1	529.5	426.4	141.8	136.3	120.2	24.6	23.3	10.1	14.4	13.4	
STATION FACILITY					28.7	11.6	113.3	15.4							
SIGNALS & TELECOM	8.7	29.9	38.0	9.1	96.7	110.5	247.4	34.9		3.3	8.0	16.1	5.6	10.9	
LAND ACQ & CONP			39.9	39.9											
ROLLING STOCKS								721.0				226.8			
-SALVAGE VALUE															
WITHOUT	16.9	63.2	134.3	129.0	231.0	261.7	413.7	796.6	12.6	29.3	13.8	260.2	26.4	13.8	
RAILWAY	16.9	63.2	134.3	129.0	231.0	261.7	413.7	796.6	12.6	29.3	13.8	260.2	26.4	13.8	
CIVIL WORK	8.3	33.4	57.7	79.9	108.5	122.9	94.1	21.4	12.6	26.0	5.7	16.7	21.2		
STATION FACILITY					26.7	22.9	75.3	15.4							
SIGNALS & TELECOM	8.6	29.7	36.7	9.1	93.8	115.9	244.3	39.0		3.3	8.0	18.7	7.2	13.8	
LAND ACQ & CONP			39.9	39.9											
ROLLING STOCKS								721.0				224.8			
-SALVAGE VALUE															
ROAD FLYOVER															
MAINT/OPE COST DIFF								1.6	1.4	1.3	1.1	1.0	0.8	1.4	1.2
FACILITY MAINT COST DIFF								7.8	7.8	7.8	7.0	7.8	7.8	8.6	8.6
CIVIL WORK								7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0
WITH								16.6	16.6	16.6	16.6	16.6	16.6	20.7	20.7
WITHOUT								9.5	9.5	9.5	9.5	9.5	9.5	12.8	12.8
STATION FACILITY								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH								1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1
WITHOUT								0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0
SIGNALS & TELECOM								0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5
WITH								14.1	14.1	14.1	14.1	14.1	14.1	15.8	15.8
WITHOUT								13.5	13.5	13.5	13.5	13.5	13.5	15.3	15.3
ROLLING STOCKS								12.1	12.1	12.1	12.1	15.7	15.7	15.7	15.7
WITH								12.1	12.1	12.1	12.1	15.7	15.7	15.7	15.7
WITHOUT															
ROAD FLYOVER															
WITH															
WITHOUT															
OPERATING COST DIFF								-6.2	-6.4	-6.5	-6.7	-6.9	-7.0	-7.2	-7.4
PSHL COST DIFF								-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
WITH	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
WITHOUT	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
FULL COST DIFF								-4.4	-4.5	-4.7	-4.9	-5.0	-5.2	-5.4	-5.6
WITH	6.0	6.0	6.0	6.0	6.0	6.0	6.0	1.6	1.6	1.7	1.8	1.8	1.9	2.0	2.0
WITHOUT	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.0	6.2	6.4	6.6	6.8	7.1	7.3	7.6
TOTAL BENEFIT DIFF								438.0	451.3	465.6	480.3	496.0	512.6	539.5	556.9
WITH								438.0	451.3	465.6	480.3	496.0	512.6	539.5	556.9
TIME SAVING BENEFIT								236.4	249.3	263.3	277.6	293.0	309.2	326.4	343.4
BENE OF RAILWAY PASNGR								13.0	13.5	14.3	14.7	15.3	15.9	16.6	16.0
BENE OF ROAD VEHICLE								223.3	235.8	249.0	262.9	277.7	293.3	309.2	327.4
MOTORCYCLE								20.0	21.1	22.3	23.5	24.8	26.2	27.7	29.3
SANTOR								11.4	12.1	12.8	13.5	14.3	15.1	15.9	16.8
SEDAN								126.2	131.2	138.5	146.3	154.5	163.2	172.4	182.2
LIGHT BUS								8.2	8.7	9.2	9.7	10.2	10.8	11.4	12.1
BUS								31.3	33.5	35.4	37.4	39.5	41.7	44.1	46.6
TRUCK								27.7	29.2	30.8	32.5	34.4	36.3	38.3	40.5
FUEL SAVING BENEFIT								11.5	11.8	12.2	12.5	12.8	13.2	13.6	14.0
VEHICLE AT CROSSING								11.5	11.8	12.2	12.5	12.8	13.2	13.6	14.0
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE								2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
LAND USE BENEFIT								168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
USAGE OF SPACE								168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
FOR COMMERCIAL USE								178.3	178.3	178.3	178.3	178.3	178.3	178.3	178.3
FOR OTHER USE								9.8	9.8	9.8	9.8	9.8	9.8	10.7	10.7
WITHOUT															
TIME SAVING BENEFIT															
BENE OF ROAD VEHICLE															
FUEL SAVING BENEFIT															
VEHICLE AT CROSSING															
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE															
LAND USE BENEFIT															
USAGE OF SPACE															
FOR COMMERCIAL USE															
FOR OTHER USE															
NET FLOW	-19.6	-69.5	-302.3	-444.2	-422.0	-294.0	-88.9	325.6	342.3	465.6	461.6	504.2	520.1	527.6	555.6
EIR9	18.592	18.592	18.592	18.592	18.592	18.592	18.592	18.592	18.592	18.592	18.592	18.592	18.592	18.592	18.592

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
INVESTMENT DIFF															-787.6	
WITH	268.8				808.1				96.6	561.2			193.5		-2235.0	
CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE	268.8				808.1				96.6	561.2			193.5		576.4 2811.4	
WITHOUT	268.8				808.1				96.6	561.2			193.5		-1447.5	
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	268.8				808.1				96.6	561.2			193.5		576.4 2023.8	
MAINT/OPE COST DIFF	1.0	0.8	0.6	0.4	0.2		-0.2	-0.5	-0.7	-1.0	-1.2	-1.5	-1.7	-2.0	-2.3	
FACILITY MAINT COST DIFF	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	
CIVIL WORK WITH WITHOUT	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0	8.0 20.7 12.0
STATION FACILITY WITH WITHOUT	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0	0.2 1.1 1.0
SIGNALS & TELECOM WITH WITHOUT	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3	0.5 15.8 15.3
ROLLING STOCKS WITH WITHOUT	20.2 20.2	20.2 20.2	20.2 20.2	20.2 20.2	24.6 24.6	24.6 24.6	24.6 24.6	24.6 24.6	24.6 24.6	34.1 34.1	34.1 34.1	34.1 34.1	34.1 34.1	34.1 34.1	43.8 43.8	
ROAD FLYOVER WITH WITHOUT	20.2 20.2	20.2 20.2	20.2 20.2	20.2 20.2	24.6 24.6	24.6 24.6	24.6 24.6	24.6 24.6	24.6 24.6	34.1 34.1	34.1 34.1	34.1 34.1	34.1 34.1	34.1 34.1	43.8 43.8	
OPERATING COST DIFF	-7.6	-7.8	-8.0	-8.2	-8.5	-8.7	-8.9	-9.1	-9.4	-9.6	-9.7	-10.1	-10.4	-10.7	-11.0	
PSNL COST DIFF WITH WITHOUT	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8	-1.8 1.8
FUEL COST DIFF WITH WITHOUT	-5.8 2.1 7.9	-6.0 2.2 8.1	-6.2 2.3 8.4	-6.4 2.3 8.7	-6.6 2.4 9.1	-6.8 2.5 9.3	-7.0 2.6 9.6	-7.3 2.7 10.0	-7.5 2.8 10.3	-7.6 2.9 10.6	-8.0 3.0 11.0	-8.3 3.1 11.4	-8.5 3.2 11.7	-8.8 3.3 12.1	-9.1 3.3 12.5	-9.1 3.4 12.5
TOTAL BENEFIT DIFF	577.1	597.2	618.5	641.0	665.8	682.2	699.4	717.2	735.8	755.3	775.7	796.8	818.9	842.0	866.0	
WITH	577.1	597.2	618.5	641.0	665.8	682.2	699.4	717.2	735.8	755.3	775.7	796.8	818.9	842.0	866.0	
TIME SAVING BENEFIT BENE OF RAILWAY PSNR BENE OF ROAD VEHICLE MOTORCYCLE SAILOR SEDAN LIGHT BUS BUS TRUCK	363.2 17.3 366.0 30.9 17.8 192.6 12.0 49.2 42.8	302.9 17.3 365.7 32.7 18.8 203.5 13.5 52.0 45.2	403.8 17.3 386.5 34.5 19.9 215.1 14.3 54.9 47.7	425.9 17.3 408.6 36.5 21.1 227.5 15.1 58.1 50.5	450.3 18.3 432.0 38.6 22.3 240.5 15.9 61.4 53.3	466.5 18.6 447.8 40.0 23.1 249.5 16.5 63.5 55.3	483.5 19.2 464.3 41.6 23.9 258.9 17.1 65.7 57.3	501.1 19.5 481.5 43.0 24.8 268.6 17.7 68.0 59.4	519.4 19.9 499.5 44.5 25.7 278.9 18.4 70.4 61.6	536.7 20.3 518.3 45.2 26.6 289.5 19.1 72.9 63.9	558.8 20.9 537.9 46.2 27.6 300.7 19.8 75.5 66.4	579.7 21.3 559.0 47.9 28.7 312.3 20.5 78.3 68.9	661.6 21.7 579.8 49.8 29.7 324.5 21.3 81.1 71.5	624.5 22.3 602.2 51.7 30.9 337.2 22.1 84.1 74.3	640.3 22.7 625.6 53.7 32.0 350.5 23.0 87.2 77.2	640.3 22.7 625.6 53.7 32.0 350.5 23.0 87.2 77.2
FUEL SAVING BENEFIT VEHICLE AT CROSSING VEHICLE AT FLYOVER	14.3 14.3	14.7 14.7	15.2 15.2	15.6 15.6	16.0 16.0	16.2 16.2	16.4 16.4	16.7 16.7	16.9 16.9	17.1 17.1	17.3 17.3	17.6 17.6	17.8 17.8	18.0 18.0	18.3 18.3	
ACCIDENT AVOIDANCE BENE	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE FOR OTHER USE	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7	197.4 197.4 186.8 10.7
WITHOUT																
TIME SAVING BENEFIT BENE OF ROAD VEHICLE																
FUEL SAVING BENEFIT VEHICLE AT CROSSING VEHICLE AT FLYOVER																
ACCIDENT AVOIDANCE BENE																
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE FOR OTHER USE																
NET FLOW EIPR	576.1 18.592	596.3 18.592	617.9 18.592	640.6 18.592	665.6 18.592	682.2 18.592	699.7 18.592	717.7 18.592	736.5 18.592	756.2 18.592	776.9 18.592	798.3 18.592	820.6 18.592	844.1 18.592	1655.9 18.592	

Appendix 11.4.8 Economic Analysis for Track Elevation Project,
State Railway of Thailand (Case-II-2)

(MIL. BANT) PAGE 1 /PART 1

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
INVESTMENT DIFF	16.0	56.3	231.7	343.9	329.5	219.1	61.0	114.8	115.7	7.6	-0.5	-3.6	-1.4	-2.7	
WITH	32.9	119.4	366.0	472.9	560.4	460.8	476.7	911.5	128.3	37.0	13.2	256.6	27.0	11.1	
CIVIL WORK	24.1	88.9	269.3	424.4	438.6	356.5	123.3	136.1	128.3	33.6	5.7	16.7	21.3		
STATION FACILITY	8.9	30.5	36.8	8.6	28.7	11.6	113.3	15.4		3.3	7.5	15.1	5.7	11.1	
SIGNALS & TELECOM			39.9	39.9	93.1	112.7	240.2	39.1							
LAND ACQ & COMP															
ROLLING STOCKS								721.0				224.8			
-SALVAGE VALUE															
WITHOUT	16.9	63.2	139.3	129.0	231.0	261.7	413.7	796.6	12.6	29.3	13.8	260.2	28.4	13.8	
RAILWAY	16.9	63.2	139.3	129.0	231.0	261.7	413.7	796.6	12.6	29.3	13.8	260.2	28.4	13.8	
CIVIL WORK	8.3	33.4	57.7	79.9	108.5	122.9	94.1	21.4	12.6	26.0	5.7	16.7	21.2		
STATION FACILITY	8.6	29.7	36.7	9.1	93.8	115.9	244.3	39.0		3.3	8.0	18.7	7.2	13.8	
SIGNALS & TELECOM			39.9	39.9											
LAND ACQ & COMP															
ROLLING STOCKS								721.0				224.8			
-SALVAGE VALUE															
ROAD FLYOVER															
MAINT/OPER COST DIFF								1.1	1.0	0.9	0.8	0.7	0.6	1.9	1.8
FACILITY MAINT COST DIFF								5.1	5.1	5.1	5.1	5.1	5.1	6.5	6.5
CIVIL WORK								4.8	4.8	4.8	4.8	4.8	4.8	6.4	6.4
WITH								14.4	14.4	14.4	14.4	14.4	14.4	19.2	19.2
WITHOUT								9.5	9.5	9.5	9.5	9.5	9.5	12.8	12.8
STATION FACILITY								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH								1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1
WITHOUT								0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0
SIGNALS & TELECOM								0.1	0.1	0.1	0.1	0.1	0.1		
WITH								13.6	13.6	13.6	13.6	13.6	13.6	15.2	15.2
WITHOUT								13.5	13.5	13.5	13.5	13.5	13.5	15.3	15.3
ROLLING STOCKS								12.1	12.1	12.1	12.1	15.7	15.7	15.7	15.7
WITH								12.1	12.1	12.1	12.1	15.7	15.7	15.7	15.7
WITHOUT															
ROAD FLYOVER															
WITH															
WITHOUT															
OPERATING COST DIFF								-4.0	-4.1	-4.2	-4.3	-4.4	-4.5	-4.6	-4.7
PSNL COST DIFF								-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
WITH	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
WITHOUT	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
FUEL COST DIFF								-2.7	-2.8	-2.9	-3.0	-3.1	-3.2	-3.3	-3.4
WITH	4.3	4.3	4.3	4.3	4.3	4.3	4.3	1.6	1.6	1.7	1.8	1.9	2.0	2.0	2.0
WITHOUT	4.3	4.3	4.3	4.3	4.3	4.3	4.3	0.3	4.4	4.6	4.7	4.9	5.1	5.2	5.4
TOTAL BENEFIT DIFF								395.2	407.2	420.2	433.5	447.8	462.9	488.3	504.0
WITH								395.2	407.2	420.2	433.5	447.8	462.9	488.3	504.0
TIME SAVING BENEFIT								211.1	222.9	235.7	248.8	262.8	277.7	293.5	309.0
BENE OF RAILWAY PASSENGER								13.0	13.5	14.3	14.7	15.3	15.9	16.6	16.0
BENE OF ROAD VEHICLE								198.0	209.4	221.4	234.1	247.5	261.8	276.9	293.0
MOTORCYCLE								16.8	17.8	18.8	19.9	21.0	22.3	23.5	24.9
SAMPIOR								10.6	11.2	11.8	12.5	13.2	14.0	14.8	15.7
SEDAN								110.3	116.6	123.3	130.4	137.9	145.9	154.4	163.3
LIGHT BUS								7.6	8.0	8.4	8.9	9.4	10.0	10.5	11.1
BUS								28.7	30.3	32.1	33.9	35.8	37.9	40.1	42.4
TRUCK								24.1	25.5	26.9	28.5	30.1	31.8	33.7	35.6
FUEL SAVING BENEFIT								7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT CROSSING								7.5	7.7	7.9	8.1	8.4	8.6	8.8	9.1
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE								1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT								175.1	175.1	175.1	175.1	175.1	175.1	184.5	184.5
USAGE OF SPACE								175.1	175.1	175.1	175.1	175.1	175.1	184.5	184.5
FOR COMMERCIAL USE								170.8	170.8	170.8	170.8	170.8	170.8	179.3	179.3
FOR OTHER USE								4.3	4.3	4.3	4.3	4.3	4.3	5.2	5.2
WITHOUT															
TIME SAVING BENEFIT															
BENE OF ROAD VEHICLE															
FUEL SAVING BENEFIT															
VEHICLE AT CROSSING															
VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE															
LAND USE BENEFIT															
USAGE OF SPACE															
FOR COMMERCIAL USE															
FOR OTHER USE															
NET FLOW	-16.0	-56.3	-231.7	-343.9	-329.5	-219.1	-61.0	279.2	290.5	411.6	433.3	450.7	463.7	469.1	502.2
EXRR	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
INVESTMENT DIFF															-630.5
WITH	268.0				808.1				56.6	561.2			193.5		-2078.4
CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE	268.0				808.1				56.6	561.2			193.5		576.4 2654.7
WITHOUT	268.0				808.1				56.6	561.2			193.5		-1447.5
RAILWAY CIVIL WORK STATION FACILITY SIGNALS & TELECOM LAND ACQ & COMP ROLLING STOCKS -SALVAGE VALUE ROAD FLYOVER	268.0				808.1				56.6	561.2			193.5		-1447.5
MAINT/OPE COST DIFF	1.7	1.6	1.5	1.3	1.2	1.1	0.9	0.8	0.6	0.5	0.3	0.2		-0.1	-0.3
FACILITY MAINT COST DIFF	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
CIVIL WORK	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
WITH	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
WITHOUT	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
STATION FACILITY	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WITH	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
WITHOUT	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
SIGNALS & TELECOM															
WITH	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
WITHOUT	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3
ROLLING STOCKS															
WITH	20.2	20.2	20.2	20.2	24.6	24.6	24.6	24.6	24.6	34.1	34.1	34.1	34.1	34.1	43.8
WITHOUT	20.2	20.2	20.2	20.2	24.6	24.6	24.6	24.6	24.6	34.1	34.1	34.1	34.1	34.1	43.8
ROAD FLYOVER															
WITH															
WITHOUT															
OPERATING COST DIFF	-4.8	-5.0	-5.1	-5.2	-5.3	-5.5	-5.6	-5.7	-5.9	-6.0	-6.2	-6.3	-6.5	-6.7	-6.9
PSHL COST DIFF	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
WITH															
WITHOUT	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
FUEL COST DIFF	-3.5	-3.6	-3.8	-3.9	-4.0	-4.2	-4.3	-4.4	-4.6	-4.7	-4.9	-5.0	-5.2	-5.4	-5.5
WITH	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.6
WITHOUT	5.6	5.8	6.0	6.2	6.5	6.7	6.9	7.1	7.4	7.6	7.8	8.1	8.4	8.7	9.0
TOTAL BENEFIT DIFF	522.5	540.8	550.2	580.7	603.4	617.0	633.0	648.7	664.9	682.0	699.8	718.2	737.4	757.5	778.3
WITH	522.5	540.8	550.2	580.7	603.4	617.0	633.0	648.7	664.9	682.0	699.8	718.2	737.4	757.5	778.3
TIME SAVING BENEFIT	327.2	345.2	354.4	384.5	407.0	421.3	435.4	451.9	468.0	484.9	502.6	520.8	539.9	559.9	580.5
GENE OF RAILWAY PSNGR	17.3	17.3	17.3	17.3	18.3	18.6	19.2	19.5	19.9	20.3	20.9	21.3	21.7	22.3	22.7
GENE OF ROAD VEHICLE	309.9	328.0	347.0	367.3	388.7	402.7	417.2	432.3	448.1	464.5	481.7	499.5	518.1	537.6	557.8
MOTORCYCLE	26.4	27.9	29.5	31.3	33.1	34.3	35.5	36.7	38.0	39.4	40.8	42.3	43.8	45.4	47.1
SAMTOR	16.6	17.5	18.5	19.6	20.8	21.5	22.3	23.1	23.9	24.8	25.7	26.6	27.6	28.6	29.6
SEDAN	172.0	182.9	193.5	204.8	216.8	224.3	233.1	241.7	250.2	259.2	270.0	280.2	290.8	302.0	313.6
LIGHT BUS	11.0	12.5	13.2	13.9	14.7	15.3	15.8	16.4	17.0	17.6	18.2	18.9	19.6	20.4	21.1
BUS	94.0	97.4	101.1	105.0	109.1	113.0	117.0	121.0	125.0	129.0	133.0	137.0	141.0	145.0	149.0
TRUCK	37.6	39.8	42.1	44.6	47.2	48.9	50.6	52.4	54.3	56.3	58.3	60.5	62.7	65.0	67.5
FUEL SAVING BENEFIT VEHICLE AT CROSSING VEHICLE AT FLYOVER	9.3	9.6	9.9	10.1	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9
ACCIDENT AVOIDANCE BENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE FOR OTHER USE	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5	184.5
WITHOUT															
TIME SAVING BENEFIT GENE OF ROAD VEHICLE															
FUEL SAVING BENEFIT VEHICLE AT CROSSING VEHICLE AT FLYOVER															
ACCIDENT AVOIDANCE BENE															
LAND USE BENEFIT USAGE OF SPACE FOR COMMERCIAL USE FOR OTHER USE															
NET FLOW EIRR	520.0	539.2	558.7	579.4	602.2	616.8	632.1	647.9	664.3	681.5	699.5	718.0	737.4	757.7	1409.5
	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377	20.377

Appendix 12.5.1 Financial Analysis for Track Elevation Project,
State Railway of Thailand (Case-I-2)

(MILL. BAHT) PAGE 1 /PART 1

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
PROFIT & LOSS STATEMENT															
REVENUE								143.6	151.6	160.2	169.6	179.8	190.9	203.0	218.8
OPERATING INCOME								115.1	123.0	131.7	141.0	151.2	162.4	174.5	187.7
PASSENGER								64.0	88.1	92.4	96.9	101.7	106.6	111.0	117.3
FREIGHT								31.0	34.9	39.2	44.1	49.6	55.7	62.7	70.4
RENT INCOME								28.6	28.6	28.6	28.6	28.6	28.6	28.6	31.1
OPERATING EXPENSE								518.9	526.3	517.3	509.8	534.6	511.3	487.8	479.3
WORKING COST								83.9	85.9	87.9	98.4	113.6	102.4	105.1	117.2
MAINTENANCE COST								41.9	41.9	41.9	50.1	60.1	46.4	46.4	55.7
PERSONNEL COST								4.9	4.9	4.9	4.9	7.8	7.8	7.8	7.8
ENERGY COST								37.1	39.1	41.1	43.3	45.7	48.2	50.9	53.7
INTEREST PAYMENT								336.5	341.9	330.8	312.9	308.0	296.7	270.6	239.6
DEPRECIATION								98.5	98.5	98.5	98.5	112.2	112.2	112.2	122.4
OPERATING PROFIT								-375.3	-374.7	-357.1	-340.2	-354.8	-320.3	-284.8	-260.5
NET INCOME BEFORE TAX								-375.3	-374.7	-357.1	-340.2	-354.8	-320.3	-284.8	-260.5
INCOME TAX PAYABLE															
NET INCOME AFTER TAX								-375.3	-374.7	-357.1	-340.2	-354.8	-320.3	-284.8	-260.5
INVESTMENT PLANNING															
CIVIL WORK	25.2	101.3	276.4	420.8	427.8	383.0	195.2	76.1	79.7	23.3	11.9	138.2	140.7	14.1	
FOREIGN CURRENCY	11.3	45.1	71.9	110.1	113.2	124.4	99.4	35.6	45.2	9.9	5.3	36.7	38.1	8.0	
LOCAL CURRENCY	14.0	56.1	204.5	310.7	314.5	258.6	95.8	40.5	34.4	13.4	6.6	101.5	102.6	6.1	
STATION FACILITY					1.4	4.8	109.1	1.3			1.3	16.2			
FOREIGN CURRENCY					0.4	1.4	32.1	0.4			0.4	4.8			
LOCAL CURRENCY					1.0	3.4	77.0	0.9			0.9	11.4			
SIGNALS & TELECOM	10.3	34.4	43.7	9.6	106.4	133.3	268.3		3.8	3.8	20.3	42.0	6.7	12.7	
FOREIGN CURRENCY	4.5	15.1	23.4	4.4	63.1	79.5	159.2		1.7	1.7	12.2	25.4	4.0	7.9	
LOCAL CURRENCY	5.8	19.3	20.3	5.2	43.3	53.8	109.1		2.1	2.1	8.1	16.6	2.7	4.8	
LAND ACQ & COMP			26.1	26.1											
LOCAL CURRENCY			26.1	26.1											
ROLLING STOCK								702.8				254.6			
FOREIGN CURRENCY								576.1				208.7			
LOCAL CURRENCY								126.7				45.9			
TOTAL INVESTMENT	35.5	135.7	346.2	456.5	535.6	521.1	572.6	780.2	83.5	27.1	33.5	451.0	147.4	26.8	
FOREIGN TOTAL	15.8	60.2	95.3	114.5	176.7	205.3	290.8	612.0	46.9	11.6	17.9	275.5	42.1	15.9	
LOCAL TOTAL	19.8	75.4	250.8	342.0	358.8	315.7	281.9	168.1	36.5	15.5	15.6	175.5	105.3	10.9	
-SALVAGE VALUE															
INT DURING CONST.	2.2	11.4	40.7	88.0	146.8	210.2	278.4								
FINANCE TOTAL															
BORROWING	37.7	147.1	386.9	544.5	682.4	731.3	851.0	780.2	83.5	27.1	33.5	451.0	147.4	26.8	
REPAYMENT						2.2	10.7	39.4	81.6	130.8	182.3	230.6	260.4	270.2	281.2
BALANCE	37.7	184.8	571.7	1116.2	1798.7	2927.8	3368.1	4108.9	4110.8	4007.1	3858.2	4070.6	3957.6	3714.3	3633.0
INTEREST								336.5	341.9	330.8	312.9	308.8	296.7	270.6	239.6
FINANCE IN FOREIGN CCY															
BORROWING	16.1	62.1	99.8	122.4	189.8	224.8	319.0	612.0	46.9	11.6	17.9	275.5	42.1	15.9	
REPAYMENT										0.0	0.0	3.9	8.9	15.0	26.5
BALANCE	16.1	78.2	178.0	300.5	490.3	715.1	1034.1	1646.1	1693.1	1704.6	1721.7	1993.3	2026.5	2027.4	2002.9
INTEREST								44.8	50.4	51.1	51.5	57.0	60.5	60.8	60.3
FINANCE IN LOCAL CCY 1															
BORROWING															
REPAYMENT															
BALANCE															
INTEREST															
FINANCE IN LOCAL CCY 2															
BORROWING	21.6	85.0	287.1	422.1	492.6	506.4	532.1	168.1	36.5	15.5	15.6	175.5	105.3	10.9	
REPAYMENT						2.2	10.7	39.4	81.6	130.8	181.5	234.7	251.5	255.2	256.7
BALANCE	21.6	106.6	393.7	815.8	1308.4	1812.7	2334.0	2462.8	2417.8	2302.4	2136.5	2077.3	1931.1	1686.9	1430.2
INTEREST								291.7	291.5	279.0	261.4	251.1	236.1	209.8	179.3
CASHFLOW STATEMENT															
CASH IN	37.7	147.1	386.9	544.5	682.4	731.3	851.0	503.4	-192.7	-231.5	-208.2	208.4	-60.8	-145.8	-138.0
NET INCOME AFTER TAX								-375.3	-374.7	-357.1	-340.2	-354.8	-320.3	-284.8	-260.5
DEPRECIATION								98.5	98.5	98.5	98.5	112.2	112.2	112.2	122.4
BORROWING	37.7	147.1	386.9	544.5	682.4	731.3	851.0	780.2	83.5	27.1	33.5	451.0	147.4	26.8	
CASH OUT	37.7	147.1	306.9	544.5	682.4	733.4	861.7	819.5	165.1	157.9	215.8	689.6	407.8	297.0	281.2
INVESTMENT	35.5	135.7	346.2	456.5	535.6	521.1	572.6	780.2	83.5	27.1	33.5	451.0	147.4	26.8	
INT DURING CONST.	2.2	11.4	40.7	88.0	146.8	210.2	278.4								
REPAYMENT						2.2	10.7	39.4	81.6	130.8	182.3	230.6	260.4	270.2	281.2
NET CASHFLOW						-2.2	-10.7	-316.1	-357.8	-389.4	-423.9	-481.2	-468.6	-442.8	-419.3
CUM NET CASHFLOW						-2.2	-12.8	-328.9	-686.7	-1076.1	-1500.0	-1981.2	-2449.8	-2892.6	-3311.9

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
PROFIT & LOSS STATEMENT															
REVENUE	229.4	240.7	252.0	265.6	279.3	291.1	303.5	316.6	330.4	344.9	360.2	376.3	393.2	411.1	429.9
OPERATING INCOME	190.3	209.7	221.7	234.5	248.2	260.0	272.5	285.6	299.3	313.0	329.1	345.2	362.2	380.0	398.9
PASSENGER	122.0	125.9	132.0	137.2	142.7	147.7	152.8	158.1	163.6	169.3	175.2	181.3	187.6	194.1	200.8
FREIGHT	75.4	82.8	89.7	97.3	105.5	112.3	119.6	127.4	135.7	144.5	153.9	163.9	174.6	185.9	198.0
RENT INCOME	31.1	31.2	31.2	31.2	31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.2	31.2
OPERATING EXPENSE	406.3	460.1	431.2	406.4	423.4	413.2	405.5	400.9	397.5	470.8	475.3	473.7	473.9	474.9	553.8
WORKING COST	128.8	132.1	135.5	139.2	151.9	155.4	159.2	163.2	167.4	193.5	198.3	203.4	208.8	214.6	242.7
MAINTENANCE COST	61.3	61.3	61.3	61.3	66.9	66.9	66.9	66.9	66.9	78.7	78.7	78.7	78.7	78.7	90.9
PERSONNEL COST	10.7	10.7	10.7	10.7	13.8	13.8	13.8	13.8	13.8	23.5	23.5	23.5	23.5	23.5	33.3
ENERGY COST	56.8	60.0	63.5	67.2	71.2	74.7	78.5	82.5	86.7	91.2	96.0	101.1	106.6	112.4	118.5
INTEREST PAYMENT	210.5	189.1	156.7	128.2	116.1	102.4	90.9	82.3	74.6	60.4	60.0	63.3	70.1	73.2	91.4
DEPRECIATION	130.9	138.9	138.9	138.9	155.4	155.4	155.4	155.4	155.4	167.0	167.0	167.0	167.0	167.0	219.7
OPERATING PROFIT	-256.9	-219.4	-178.4	-140.8	-144.1	-122.1	-101.9	-84.3	-67.1	-125.9	-115.1	-97.4	-80.7	-63.8	-123.9
NET INCOME BEFORE TAX	-256.9	-219.4	-178.4	-140.8	-144.1	-122.1	-101.9	-84.3	-67.1	-125.9	-115.1	-97.4	-80.7	-63.8	-123.9
INCOME TAX PAYABLE															
NET INCOME AFTER TAX	-256.9	-219.4	-178.4	-140.8	-144.1	-122.1	-101.9	-84.3	-67.1	-125.9	-115.1	-97.4	-80.7	-63.8	-123.9
INVESTMENT PLANNING															
CIVIL WORK															
FOREIGN CURRENCY															
LOCAL CURRENCY															
STATION FACILITY															
FOREIGN CURRENCY															
LOCAL CURRENCY															
SIGNALS & TELECOM															
FOREIGN CURRENCY															
LOCAL CURRENCY															
LAND ACQ & COMP															
LOCAL CURRENCY															
ROLLING STOCK	308.2				789.5				98.2	684.7			216.4		703.1
FOREIGN CURRENCY	252.7				647.1				80.5	561.2			177.4		576.4
LOCAL CURRENCY	55.6				142.4				17.7	123.5			39.0		126.8
TOTAL INVESTMENT	308.2				789.5				98.2	684.7			216.4		703.1
FOREIGN TOTAL	252.7				647.1				80.5	561.2			177.4		576.4
LOCAL TOTAL	55.6				142.4				17.7	123.5			39.0		126.8
-SALVAGE VALUE															3051.4
FINANCE PROGRAM															
FINANCE TOTAL															
BORROWING	308.2				308.2					684.7					703.1
REPAYMENT	291.9	316.8	329.3	290.5	241.8	197.6	158.2	143.5	140.6	144.6	155.7	138.2	127.6	126.6	151.5
BALANCE	3449.4	3132.6	2883.3	2512.0	2579.2	2381.6	2223.4	2079.9	1939.2	2479.3	2323.5	2165.4	2057.7	1931.2	2482.8
INTEREST	218.5	189.1	156.7	128.2	116.1	102.4	90.9	82.3	74.6	60.4	60.0	63.3	76.1	73.2	91.4
FINANCE IN FOREIGN CCY															
BORROWING	252.7				252.7					561.2					576.4
REPAYMENT	35.0	51.7	82.3	84.7	85.2	66.1	99.9	102.0	102.8	102.8	115.4	115.4	115.4	115.4	128.1
BALANCE	2219.8	2168.1	2085.0	2001.1	2168.5	2002.4	1982.5	1880.5	1777.7	2236.1	2120.7	2005.2	1889.8	1779.4	2222.6
INTEREST	65.0	65.4	63.2	60.7	63.8	63.1	60.2	57.2	54.1	63.6	64.5	61.0	57.6	54.1	63.3
FINANCE IN LOCAL CCY 1															
BORROWING															
REPAYMENT															
BALANCE															
INTEREST															
FINANCE IN LOCAL CCY 2															
BORROWING	55.6				55.6					123.5					126.8
REPAYMENT	256.1	265.1	247.0	205.9	156.6	111.5	58.3	41.5	37.8	41.8	46.3	22.7	12.2	11.1	23.5
BALANCE	1229.6	964.5	717.5	511.7	410.7	299.2	240.9	199.4	161.5	243.2	202.9	180.1	167.9	156.8	260.1
INTEREST	153.6	123.7	93.5	67.6	52.3	39.2	39.7	25.2	20.5	26.7	25.6	22.3	20.5	19.2	28.1
CASHFLOW STATEMENT															
CASH IN	190.3	-80.5	-39.5	-1.9	319.5	33.3	53.5	71.1	88.4	745.7	71.9	89.6	106.4	123.3	798.9
NET INCOME AFTER TAX	-256.9	-219.4	-178.4	-140.8	-144.1	-122.1	-101.9	-84.3	-67.1	-125.9	-115.1	-97.4	-80.7	-63.8	-123.9
DEPRECIATION	130.9	138.9	138.9	138.9	155.4	155.4	155.4	155.4	155.4	167.0	167.0	167.0	167.0	167.0	219.7
BORROWING	308.2				308.2					684.7					703.1
CASH OUT	600.1	316.8	329.3	290.5	1031.3	197.6	158.2	143.5	238.8	829.3	155.7	138.2	344.0	126.6	854.7
INVESTMENT	308.2				709.5				98.2	684.7			216.4		703.1
INT DURING CONST. REPAYMENT	291.9	316.8	329.3	290.5	241.8	197.6	158.2	143.5	140.6	144.6	155.7	138.2	127.6	126.6	151.5
NET CASHFLOW	-409.0	-397.3	-368.7	-292.4	-711.0	-164.3	-104.7	-72.4	-150.5	-83.6	-83.8	-68.6	-237.7	-3.3	-55.7
CUM NET CASHFLOW	-3721.7	-4119.0	-4487.7	-4780.1	-5491.9	-5656.2	-5760.9	-5833.3	-5983.0	-6067.4	-6151.2	-6199.7	-6437.4	-6440.7	-6496.4

Appendix 12.5.2 Financial Analysis for Track Elevation Project,
State Railway of Thailand (Case-II-3)

(NZL. SART) PAGE 1 / PART 1

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
PROFIT & LOSS STATEMENT																
=====																
REVENUE								177.1	186.0	195.8	206.3	217.6	230.0	245.9	260.4	
OPERATING INCOME								139.5	148.5	158.2	168.7	180.1	192.4	205.8	220.4	
PASSENGER								108.4	113.6	119.0	124.6	130.5	136.7	143.1	149.9	
FREIGHT								31.0	34.9	39.2	44.1	49.6	55.7	62.7	70.4	
RENT INCOME								37.6	37.6	37.6	37.6	37.6	37.6	40.1	40.1	
OPERATING EXPENSE								689.4	692.1	680.2	665.6	672.4	627.6	604.9	585.2	
WORKING COST								116.7	105.9	108.2	119.2	134.1	123.8	133.5	136.5	
MAINTENANCE COST								66.5	53.5	53.5	62.2	71.4	58.4	65.1	65.1	
PERSONNEL COST								5.9	5.9	5.9	5.9	9.0	9.0	9.0	9.0	
ENERGY COST								44.3	46.4	48.7	51.1	53.7	56.4	59.3	62.4	
INTEREST PAYMENT								446.7	460.1	445.9	420.3	397.1	362.4	321.0	278.2	
DEPRECIATION								126.1	126.1	126.1	126.1	141.3	141.3	150.5	150.5	
OPERATING PROFIT								-512.3	-506.0	-486.4	-459.3	-454.8	-397.6	-359.0	-304.8	
NET INCOME BEFORE TAX								-512.3	-506.0	-486.4	-459.3	-454.8	-397.6	-359.0	-304.8	
INCOME TAX PAYABLE																
NET INCOME AFTER TAX								-512.3	-506.0	-486.4	-459.3	-454.8	-397.6	-359.0	-304.8	
=====																
INVESTMENT PLANNING																
=====																
CIVIL WORK	33.0	121.6	416.7	609.5	614.7	490.6	158.4	158.1	191.1	28.5	24.0	12.2	16.8	13.4		
FOREIGN CURRENCY	14.7	54.1	120.2	172.3	182.4	174.9	83.1	48.9	35.7	11.3	20.2	2.4	6.6	13.4		
LOCAL CURRENCY	18.3	67.5	296.5	437.2	432.3	315.8	75.2	109.2	105.5	17.2	3.9	9.8	10.2			
STATION FACILITY					33.1	13.4	130.5	17.7								
FOREIGN CURRENCY					10.0	4.0	39.4	5.3								
LOCAL CURRENCY					23.1	9.4	91.1	12.4								
SIGNALS & TELECOM	10.1	34.7	45.4	18.2	114.4	143.4	299.5	41.0		3.8	9.2	19.3	6.7	12.7		
FOREIGN CURRENCY	4.4	15.2	24.4	4.7	67.2	84.6	177.3	25.5		1.7	5.7	11.4	4.0	7.9		
LOCAL CURRENCY	5.7	19.5	21.0	5.5	47.2	58.8	122.2	15.5		2.1	3.5	7.9	2.7	4.8		
LAND ACQ & COMP			39.9	39.9												
LOCAL CURRENCY			39.9	39.9												
ROLLING STOCK								879.6				274.3				
FOREIGN CURRENCY								721.0				224.8				
LOCAL CURRENCY								158.6				49.5				
TOTAL INVESTMENT	43.1	156.3	502.0	659.6	762.2	647.4	500.3	1096.3	141.1	32.3	33.2	305.7	23.5	26.1		
FOREIGN TOTAL	19.1	69.3	194.6	177.0	259.6	263.5	299.8	800.7	35.7	13.0	25.9	238.6	10.6	21.3		
LOCAL TOTAL	24.0	87.0	357.4	482.6	502.6	383.9	208.6	295.7	105.5	19.3	7.4	67.1	12.9	4.8		
-SALVAGE VALUE																
INT DURING CONST.	2.6	13.4	54.2	121.1	203.7	286.3	366.6									
=====																
FINANCE PROGRAM																
=====																
FINANCE TOTAL								1096.3	141.1	32.3	33.2	305.7	23.5			
BORROWING	45.7	169.6	556.2	780.8	966.0	933.7	955.0	1096.3	141.1	32.3	33.2	305.7	23.5			
REPAYMENT						2.6	12.4	53.0	112.2	181.0	246.3	311.7	348.8	368.7	384.6	
BALANCE	45.7	215.4	771.6	1552.4	2518.4	3449.5	4392.0	5635.4	5464.3	5315.5	5102.5	5096.6	4771.3	4602.6	4018.0	
INTEREST						446.7	460.1	445.9	420.3	397.1	362.4	321.0	278.2			
FINANCE IN FOREIGN CCY																
BORROWING	19.5	71.5	150.6	188.3	278.5	290.9	336.8	800.7	35.7	13.0	25.9	238.6	10.6			
REPAYMENT								1.0			4.5	12.1	21.5	35.4		
BALANCE	19.5	91.0	242.6	429.9	708.4	999.2	1336.0	2136.7	2172.3	2185.3	2210.2	2444.3	2642.8	2421.3	2385.9	
INTEREST								58.1	64.9	65.5	66.1	71.6	73.3	72.0	71.8	
FINANCE IN LOCAL CCY 1																
BORROWING																
REPAYMENT																
BALANCE																
INTEREST																
FINANCE IN LOCAL CCY 2																
BORROWING	26.2	98.2	405.6	592.4	687.5	642.9	610.2	295.7	105.5	19.3	7.4	67.1	12.9			
REPAYMENT						2.6	12.4	53.0	112.2	181.0	246.3	307.1	336.7	347.2	349.2	
BALANCE	26.2	124.4	530.0	1122.5	1810.0	2450.2	3056.0	3299.7	3291.9	3130.2	2892.3	2652.3	2326.5	1981.3	1632.2	
INTEREST								358.6	395.2	380.5	354.2	325.5	289.1	243.2	205.3	
=====																
CASHFLOW STATEMENT																
=====																
CASH IN	45.7	169.6	556.2	780.8	966.0	933.7	955.0	710.0	-238.8	-326.1	-300.1	-7.8	-232.0	-208.6	-159.3	
NET INCOME AFTER TAX								-512.3	-506.0	-486.4	-459.3	-454.8	-397.6	-359.0	-304.8	
DEPRECIATION								126.1	126.1	126.1	126.1	141.3	141.3	150.5	150.5	
BORROWING	45.7	169.6	556.2	780.8	966.0	933.7	955.0	1096.3	141.1	32.3	33.2	305.7	23.5			
CASH OUT	45.7	169.6	556.2	780.8	966.0	936.4	967.4	1149.3	253.4	213.3	279.5	617.4	372.3	309.8	384.6	
INVESTMENT	43.1	156.3	502.0	659.6	762.2	647.4	588.3	1096.3	141.1	32.3	33.2	305.7	23.5	26.1		
INT DURING CONST.	2.6	13.4	54.2	121.1	203.7	286.3	366.6									
REPAYMENT						2.6	12.4	53.0	112.2	181.0	246.3	311.7	348.8	368.7	384.6	
NET CASHFLOW						-2.6	-12.4	-439.3	-492.2	-539.3	-579.6	-625.1	-605.0	-603.4	-538.9	
CUM NET CASHFLOW						-2.6	-15.1	-484.4	-946.6	-1485.9	-2065.5	-2690.6	-3295.7	-3899.1	-4437.9	

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
PROFIT & LOSS STATEMENT															
REVENUE	271.6	203.4	295.9	309.3	323.4	335.8	340.8	362.5	376.9	392.0	407.0	424.5	442.0	460.5	479.9
OPERATING INCOME	231.5	243.3	255.9	269.2	283.3	295.7	308.8	322.4	336.8	351.9	367.8	384.4	402.0	420.4	439.0
PASSENGER	155.1	160.5	166.1	171.9	177.9	183.4	189.1	195.0	201.1	207.4	213.8	220.5	227.4	234.5	241.8
FREIGHT	76.4	82.8	89.7	97.3	105.5	112.3	119.6	127.4	135.7	144.5	153.9	163.9	174.6	185.9	198.0
RENT INCOME	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1
OPERATING EXPENSE	564.0	528.0	491.1	460.5	476.9	465.0	456.6	452.8	451.1	526.5	532.9	532.2	532.1	532.4	610.7
WORKING COST	149.0	152.4	156.2	160.1	173.6	177.2	181.0	185.0	189.3	215.5	220.3	225.5	231.0	236.8	265.0
MAINTENANCE COST	71.1	71.1	71.1	71.1	77.1	77.1	77.1	77.1	77.1	88.9	88.9	88.9	88.9	88.9	101.0
PERSONNEL COST	12.2	12.2	12.2	12.2	15.4	15.4	15.4	15.4	15.4	25.2	25.2	25.2	25.2	25.2	35.0
ENERGY COST	65.7	69.2	72.9	76.9	81.1	84.7	88.5	92.6	96.9	101.4	106.3	111.4	116.9	122.7	128.9
INTEREST PAYMENT	246.4	206.9	166.3	131.8	116.6	101.1	88.8	81.0	75.0	92.7	94.2	88.4	82.8	77.3	94.8
DEPRECIATION	168.6	168.6	168.6	168.6	166.7	166.7	166.7	166.7	166.7	218.3	218.3	218.3	218.3	218.3	251.0
OPERATING PROFIT	-292.4	-244.6	-195.1	-151.3	-153.5	-129.2	-107.7	-90.3	-74.2	-134.6	-125.1	-107.7	-90.1	-71.9	-130.9
NET INCOME BEFORE TAX	-292.4	-244.6	-195.1	-151.3	-153.5	-129.2	-107.7	-90.3	-74.2	-134.6	-125.1	-107.7	-90.1	-71.9	-130.9
INCOME TAX PAYABLE															
NET INCOME AFTER TAX	-292.4	-244.6	-195.1	-151.3	-153.5	-129.2	-107.7	-90.3	-74.2	-134.6	-125.1	-107.7	-90.1	-71.9	-130.9
INVESTMENT PLANNING															
CIVIL WORK															
FOREIGN CURRENCY															
LOCAL CURRENCY															
STATION FACILITY															
FOREIGN CURRENCY															
LOCAL CURRENCY															
SIGNALS & TELECOM															
FOREIGN CURRENCY															
LOCAL CURRENCY															
LAND ACQ & COMP															
LOCAL CURRENCY															
ROLLING STOCK	327.9				985.9				117.9	684.7			236.0		703.1
FOREIGN CURRENCY	268.8				808.1				96.6	561.2			193.5		576.4
LOCAL CURRENCY	59.1				177.8				21.3	123.5			42.6		126.8
TOTAL INVESTMENT	327.9				985.9				117.9	684.7			236.0		703.1
FOREIGN TOTAL	268.8				808.1				96.6	561.2			193.5		576.4
LOCAL TOTAL	59.1				177.8				21.3	123.5			42.6		126.8
-SALVAGE VALUE															3350.6
INT DURING CONST.															
FINANCE PROGRAM															
FINANCE TOTAL															
BORROWING	327.9				327.9					684.7					703.1
REPAYMENT	397.2	411.0	411.7	354.3	286.2	229.1	179.2	150.1	139.6	143.6	156.3	149.6	148.3	148.3	174.1
BALANCE	3948.7	3537.7	3126.0	2771.7	2813.4	2584.4	2405.2	2255.0	2115.4	2656.5	2500.2	2350.7	2202.4	2054.1	2583.2
INTEREST	246.4	206.9	166.3	131.8	116.6	101.1	88.8	81.0	75.0	92.7	94.2	88.4	82.8	77.3	94.8
FINANCE IN FOREIGN CCY															
BORROWING	268.8				268.8					561.2					576.4
REPAYMENT	50.0				109.3	110.6	122.5	123.0	123.0	123.0	136.5	136.5	136.5	136.5	149.9
BALANCE	2604.7	2537.9	2431.0	2322.4	2481.9	2371.3	2248.8	2125.8	2002.8	2441.0	2304.5	2168.1	2031.6	1895.2	2321.6
INTEREST	76.5	76.6	73.7	70.5	73.3	72.0	68.4	64.7	61.0	69.9	70.2	66.1	62.0	57.9	66.4
FINANCE IN LOCAL CCY 1															
BORROWING															
REPAYMENT															
BALANCE															
INTEREST															
FINANCE IN LOCAL CCY 2															
BORROWING	59.1				59.1					123.5					126.8
REPAYMENT	347.3	344.2	304.9	245.6	176.9	118.5	56.7	27.1	16.6	20.6	19.8	13.1	11.8	11.8	24.2
BALANCE	1344.0	999.9	695.0	449.3	331.6	213.0	156.3	129.2	112.6	215.5	195.7	182.6	170.8	150.9	261.6
INTEREST	169.9	130.3	92.5	61.3	43.3	29.1	20.5	16.3	14.0	22.8	24.1	22.3	20.8	19.4	26.3
CASHFLOW STATEMENT															
CASH IN	204.1	-76.0	-26.5	17.3	361.1	57.6	79.0	96.4	112.5	768.4	93.3	110.7	128.3	146.4	823.3
NET INCOME AFTER TAX	-292.4	-244.6	-195.1	-151.3	-153.5	-129.2	-107.7	-90.3	-74.2	-134.6	-125.1	-107.7	-90.1	-71.9	-130.9
DEPRECIATION	168.6	168.6	168.6	168.6	166.7	166.7	166.7	166.7	166.7	218.3	218.3	218.3	218.3	218.3	251.0
BORROWING	327.9				327.9					684.7					703.1
CASH OUT	725.1	411.0	411.7	354.3	1272.9	229.1	179.2	150.1	257.5	828.2	156.3	149.6	148.3	148.3	877.2
INVESTMENT	327.9				985.9				117.9	684.7			236.0		703.1
INT DURING CONST. REPAYMENT	397.2	411.0	411.7	354.3	286.2	229.1	179.2	150.1	139.6	143.6	156.3	149.6	148.3	148.3	174.1
NET CASHFLOW	-521.0	-487.0	-438.2	-336.9	-910.9	-171.5	-100.2	-53.7	-144.9	-59.8	-63.0	-38.9	-256.0	-1.9	-53.9
CUM NET CASHFLOW	-4959.0	-5446.0	-5884.2	-6221.1	-7132.0	-7303.5	-7403.7	-7457.4	-7602.4	-7662.2	-7725.2	-7764.1	-8020.1	-8022.0	-6075.9

Appendix 12.5.3 Net Cash Flow by Finance Plan (Case-I-2)

(Unit: Million Baht)

Year	Finance Plan No. 1			Finance Plan No. 2			Finance Plan No. 3			
	Subsidies to 50% of Domestic Currency Portion			Subsidies to 100% of Domestic Currency Portion			Subsidies to 100% of Domestic Currency Portion plus Subsidies to Interest on Foreign Currency Borrowing			
	Net Cash Flow (1)	(1)-(2) Subsidies Net Cash Flow	Accumulated Net Cash Flow	(1)-(3) Subsidies Net Cash Flow	Accumulated Net Cash Flow	(1)-(4) Subsidies Net Cash Flow	Accumulated Net Cash Flow	(4) Subsidies	(1)-(4) Subsidies Net Cash Flow	Accumulated Net Cash Flow
1991	-328.9	171.9	-157.0	343.8	+14.9	+14.9	388.6	+59.7	+59.7	+59.7
92	-357.8	186.6	-171.2	373.1	+15.3	+30.2	423.5	+65.7	+125.4	+125.4
93	-389.4	205.3	-184.1	410.6	+21.2	+51.4	461.7	+72.3	+197.7	+197.7
94	-423.9	221.4	-202.5	442.8	+18.9	+70.3	494.3	+70.4	+268.2	+268.2
95	-481.2	242.8	-238.4	485.7	+4.5	+74.9	543.5	+62.3	+350.4	+350.4
96	-468.6	243.8	-224.8	487.6	+19.0	+93.9	548.2	+79.6	+410.0	+410.0
97	-442.8	232.5	-210.3	464.9	+22.1	+116.0	525.7	+82.9	+492.9	+492.9
98	-419.3	218.0	-201.3	436.1	+16.8	+132.8	496.3	+77.0	+570.0	+570.0
99	-409.8	204.8	-205.0	409.7	-0.1	+132.6	474.6	+64.8	+634.8	+634.8
2000	-397.3	194.4	-202.9	388.8	-8.5	+124.2	454.3	+57.0	+691.8	+691.8
01	-368.7	170.2	-198.5	340.4	-28.3	+95.9	403.6	+34.9	+726.7	+726.7
02	-292.4	136.7	-155.7	273.4	-19.0	+76.9	334.1	+41.7	+768.4	+768.4
03	-711.8	104.5	-607.3	208.9	-502.9	-425.9	272.7	-439.1	+329.3	+329.3
04	-164.3	75.4	-88.9	150.7	-13.6	-439.5	213.9	+49.6	+378.9	+378.9
05	-104.7	44.5	-60.2	88.9	-15.8	-455.3	149.2	+44.5	+423.3	+423.3
06	-72.4	33.3	-39.1	66.7	-5.7	-461.0	123.8	+51.4	+474.8	+474.8
07	-150.5	29.2	-121.3	58.4	-92.1	-553.1	112.5	-38.0	+436.8	+436.8
08	-83.6	34.3	-49.3	68.6	-15.0	-568.1	132.3	+48.7	+485.4	+485.4
09	-83.8	32.9	-50.9	65.8	-18.0	-586.1	130.3	+46.5	+531.9	+531.9
10	-48.6	22.5	-26.1	45.1	-3.5	-589.6	106.1	+57.5	+589.4	+589.4
11	-237.7	16.4	-221.3	32.8	-204.9	-794.6	90.3	-147.4	+442.0	+442.0
12	-3.3	15.1	+11.8	30.3	+27.0	-767.6	84.4	+81.1	+523.1	+523.1
13	-55.7	25.7	-30.0	51.5	-4.2	-771.7	114.9	+59.2	+582.3	+582.3
Total	-6,496.4	2,862.3	-3,634.1	5,724.6		-771.7	7,078.7		+582.3	+582.3

Appendix 12.5.4 Net Cash Flow by Finance Plan (Case-II-3)

(Unit: Million Baht)

Year	Finance Plan No. 1			Finance Plan No. 2			Finance Plan No. 3			
	Subsidies to 50% of Domestic Currency Portion			Subsidies to 100% of Domestic Currency Portion			Subsidies to 100% of Domestic Currency Portion plus Subsidies to Interest on Foreign Currency Borrowing			
	Net Cash Flow (1)	(1)-(2) Subsidies Net Cash Flow	Accumulated Net Cash Flow	(1)-(3) Subsidies Net Cash Flow	Accumulated Net Cash Flow	(1)-(4) Subsidies Net Cash Flow	Accumulated Net Cash Flow	(4) Subsidies	(1)-(4) Subsidies Net Cash Flow	Accumulated Net Cash Flow
1991	-454.4	228.4	-226.0	456.7	+2.3	+2.3	514.8	+60.4	+60.4	+60.4
92	-492.9	254.4	-238.5	508.2	+15.3	+17.5	573.1	+80.2	+80.2	+140.5
93	-539.3	280.7	-258.6	561.4	+22.1	+39.7	626.9	+87.6	+87.6	+228.1
94	-579.6	299.8	-279.8	599.5	+19.9	+59.6	665.7	+86.1	+86.1	+314.2
95	-625.1	316.3	-308.8	632.5	+7.4	+67.0	704.1	+79.0	+79.0	+393.2
96	-605.0	312.9	-292.1	625.8	+20.8	+87.8	699.1	+94.1	+94.1	+487.3
97	-603.4	297.7	-305.7	595.4	-8.0	+79.8	668.2	+64.8	+64.8	+552.1
98	-538.9	277.8	-261.1	555.5	+16.6	+96.4	627.4	+88.5	+88.5	+640.5
99	-521.0	258.6	-262.4	517.2	-3.8	+92.6	593.7	+72.7	+72.7	+713.2
2000	-487.0	237.3	-249.7	474.5	-12.5	+80.1	551.1	+64.1	+64.1	+777.3
01	-438.2	198.7	-239.5	397.4	-40.8	+39.3	471.1	+32.9	+32.9	+810.2
02	-336.9	153.4	-183.5	306.9	-30.0	+9.3	377.4	+40.5	+40.5	+850.7
03	-910.9	110.1	-800.8	220.2	-690.7	-681.4	293.5	-617.4	-617.4	+233.3
04	-171.5	73.8	-97.7	147.6	-23.9	-705.3	219.6	+48.1	+48.1	+281.4
05	-100.2	38.6	-61.6	77.2	-23.0	-728.3	145.6	+45.4	+45.4	+326.7
06	-53.7	21.7	-32.0	43.4	-10.3	-738.6	108.1	+54.4	+54.4	+381.2
07	-144.9	15.3	-129.6	30.6	-114.3	-852.9	91.6	-53.3	-53.3	+327.9
08	-59.8	21.6	-38.2	43.3	-16.5	-869.4	113.3	+53.5	+53.5	+381.3
09	-63.0	21.9	-41.1	43.9	-19.1	-888.5	114.0	+51.0	+51.0	+432.4
10	-38.9	17.7	-21.2	35.4	-3.5	-892.0	101.5	+62.6	+62.6	+494.9
11	-256.0	16.3	-239.7	32.6	-223.4	-1,115.4	94.6	-161.4	-161.4	+333.5
12	-1.9	15.6	+13.7	31.3	+29.4	-1,086.0	89.1	+87.2	+87.2	+420.8
13	-53.9	26.2	-27.7	52.5	-1.4	-1,087.4	118.9	+65.0	+65.0	+485.8
Total	-8,075.9	3,494.2	-4,581.7	6,988.5	-1,087.4	-1,087.4	8,561.7			+485.8

