

PART 5 : FOR CHAPTER VI

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App. Table VIIA-1 REMARKS: CAR = Seřan SPEED : km/h UNIT : Operating cost Rp/km
 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 9.89= 4.30* 1.0+ 1.00* 1.2+ 0.90* 1.3+ 2.30* 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	40.50	37.75	572.97	213.94	35.50	37.56	555.89	206.51	35.50	57.88	134.40	76.93	497.38
1981	39.79	37.86	578.11	216.44	34.79	37.68	539.32	200.97	34.79	57.98	135.61	77.76	495.17
1982	39.08	37.98	583.26	219.11	34.08	37.82	522.75	195.54	34.08	58.12	136.81	78.64	493.28
1983	38.37	38.11	588.40	221.80	33.37	37.97	506.18	190.08	33.37	58.27	138.02	79.53	491.41
1984	37.66	38.25	593.55	224.51	32.66	38.12	489.61	184.61	32.66	58.42	139.23	80.45	489.56
1985	36.95	38.38	598.69	227.24	31.95	38.28	473.04	179.11	31.95	58.59	140.43	81.37	487.72
1986	36.24	38.51	601.77	229.22	31.24	38.45	461.87	175.63	31.24	58.76	141.15	82.03	486.89
1987	35.53	38.65	604.84	231.21	30.53	38.62	450.70	172.15	30.53	58.95	141.88	82.71	486.08
1988	34.82	38.79	607.92	233.19	29.82	38.80	439.53	168.66	29.82	59.14	142.60	83.41	485.26
1989	34.11	38.90	610.99	235.07	29.11	38.99	428.36	165.16	29.11	59.35	143.32	84.13	484.36
1990	33.40	39.02	614.06	236.98	28.40	39.18	417.19	161.64	28.40	59.57	144.04	84.86	483.48
1991	32.69	39.14	629.91	243.84	27.69	39.37	428.36	166.80	27.69	59.79	147.76	87.38	498.02

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212 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 9.94= 4.30* 1.0+ 1.00* 1.2+ 0.90* 1.3+ 1.80* 1.4+ 0.50* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	32.10	39.24	572.97	306.42	27.10	39.54	555.89	310.45	27.10	59.99	134.40	113.88	730.75	233.37
1981	31.55	39.34	578.11	308.69	26.55	39.70	539.32	301.24	26.55	60.17	135.61	114.81	724.73	229.56
1982	31.00	39.44	583.26	310.95	26.00	39.86	522.75	292.03	26.00	60.36	136.81	115.74	718.73	225.45
1983	30.45	39.54	588.40	313.21	25.45	40.03	506.18	282.84	25.45	60.56	138.02	116.68	712.74	221.33
1984	29.90	39.64	593.55	315.61	24.90	40.20	489.61	273.72	24.90	60.76	139.23	117.64	706.97	217.41
1985	29.35	39.74	598.69	318.64	24.35	40.42	473.04	264.83	24.35	61.01	140.43	118.68	702.15	214.43
1986	28.80	39.84	601.77	320.59	23.80	40.64	461.87	258.97	23.80	61.27	141.15	119.31	698.88	211.99
1987	28.25	39.95	604.84	322.55	23.25	40.87	450.70	253.12	23.25	61.53	141.88	119.96	695.62	209.55
1988	27.70	40.05	607.92	324.52	22.70	41.10	439.53	247.26	22.70	61.80	142.60	120.62	692.40	207.14
1989	27.15	40.16	610.99	326.50	22.15	41.34	428.36	241.40	22.15	62.08	143.32	121.29	689.20	204.83
1990	26.60	40.27	614.06	328.50	21.60	41.58	417.19	235.55	21.60	62.37	144.04	121.98	686.02	202.54
1991	26.05	40.38	629.91	337.34	21.05	41.83	428.36	242.32	21.05	62.67	147.76	125.22	704.88	206.86

App. Table VIIA-2 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km

214 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 18.60= 18.60* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	60.00	36.23	120.03	80.89	55.00	36.56	447.49	304.34	55.00	57.54	28.16	30.14	415.37
1981	59.86	36.24	148.48	100.08	54.86	36.55	447.42	304.20	54.86	57.53	34.83	37.27	441.54
1982	59.72	36.24	176.92	119.26	54.72	36.54	447.34	304.06	54.72	57.53	41.50	44.40	467.72
1983	59.58	36.25	205.36	138.46	54.58	36.53	447.27	303.92	54.58	57.52	48.17	51.53	493.91
1984	59.44	36.25	233.80	157.66	54.44	36.52	447.20	303.78	54.44	57.51	54.84	58.66	520.10
1985	59.30	36.26	262.24	176.86	54.30	36.51	447.12	303.64	54.30	57.50	61.51	65.79	546.29
1986	59.16	36.27	286.90	193.52	54.16	36.50	455.45	309.20	54.16	57.49	67.30	71.96	574.69
1987	59.02	36.27	311.56	210.19	54.02	36.49	463.77	314.76	54.02	57.48	73.08	78.14	603.08
1988	58.88	36.28	336.21	226.86	53.88	36.48	472.09	320.31	53.88	57.48	78.86	84.31	631.48
1989	58.74	36.28	360.87	243.53	53.74	36.47	480.41	325.86	53.74	57.47	84.65	90.48	659.88
1990	58.60	36.29	385.53	260.21	53.60	36.46	488.73	331.41	53.60	57.46	90.43	96.65	688.27
1991	58.46	36.29	405.44	266.96	53.46	36.45	501.80	340.18	53.46	57.45	92.76	95.12	706.26

214 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 18.70= 18.70* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	40.30	37.78	120.03	123.06	35.30	37.59	447.49	466.31	35.30	57.90	28.16	45.19	634.57	219.20
1981	40.27	37.78	148.48	152.23	35.27	37.60	447.42	466.22	35.27	57.90	34.83	55.89	674.34	232.79
1982	40.24	37.79	176.92	181.39	35.24	37.60	447.34	466.12	35.24	57.91	41.50	66.59	714.11	246.38
1983	40.21	37.79	205.36	210.55	35.21	37.60	447.27	466.03	35.21	57.91	48.17	77.29	753.87	259.96
1984	40.18	37.80	233.80	239.72	35.18	37.61	447.20	465.93	35.18	57.91	54.84	87.99	793.64	273.54
1985	40.15	37.80	262.24	268.89	35.15	37.61	447.12	465.84	35.15	57.92	61.51	98.68	833.41	287.11
1986	40.12	37.80	286.90	294.18	35.12	37.62	455.45	474.49	35.12	57.92	67.30	107.95	876.61	301.93
1987	40.09	37.81	311.56	319.46	35.09	37.62	463.77	483.14	35.09	57.93	73.08	117.22	919.82	316.73
1988	40.06	37.81	336.21	344.75	35.06	37.63	472.09	491.79	35.06	57.93	78.86	126.48	963.02	331.54
1989	40.03	37.81	360.87	370.04	35.03	37.63	480.41	500.43	35.03	57.93	84.65	135.74	1006.22	346.35
1990	40.00	37.82	385.53	395.34	35.00	37.64	488.73	509.08	35.00	57.94	90.43	145.01	1049.42	361.15
1991	39.97	37.82	405.46	405.50	34.97	37.64	501.80	522.71	34.97	57.94	92.76	148.74	1076.95	370.69

App. Table VIIA-3 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 108 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 31.10 = 29.80 * 1.0 + 0.0 * 1.2 + 1.00 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	8US COST	TOTAL COST
1980	39.40	37.93	776.97	916.43	34.40	37.76	790.22	927.90	34.40	58.05	182.25	329.05	2173.37					
1981	36.96	38.38	822.56	981.75	31.96	38.28	808.11	962.10	31.96	58.59	192.95	351.55	2295.40					
1982	34.52	38.83	868.15	1048.50	29.52	38.88	825.99	998.70	29.52	59.23	203.64	375.11	2422.32					
1983	32.08	39.25	913.74	1115.28	27.08	39.54	843.88	1037.83	27.08	59.99	214.33	359.89	2553.01					
1984	29.64	39.69	959.32	1184.01	24.64	40.30	861.76	1080.18	24.64	60.88	225.03	426.06	2690.24					
1985	27.20	40.15	1006.91	1254.86	22.20	41.32	879.65	1130.29	22.20	62.05	235.72	454.91	2840.06					
1986	24.76	40.66	1059.14	1339.27	20.76	41.97	917.97	1198.06	20.76	62.83	248.44	485.42	3022.75					
1987	22.32	41.30	1113.36	1430.20	19.32	42.77	956.30	1272.05	19.32	63.95	261.16	519.40	3221.65					
1988	19.88	42.02	1167.58	1525.79	17.88	43.76	994.62	1353.70	17.88	65.48	273.88	557.75	3437.23					
1989	17.44	43.04	1221.80	1635.45	16.44	44.82	1032.95	1439.85	16.44	67.12	286.60	598.24	3673.54					
1990	15.00	44.13	1276.02	1751.23	15.00	45.95	1071.27	1531.01	15.00	68.87	299.31	641.09	3923.34					
1991	15.00	44.13	1308.96	1796.44	15.00	45.95	1099.96	1572.01	15.00	68.87	307.04	657.64	4026.09					

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108 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 31.10 = 29.80 * 1.0 + 0.0 * 1.2 + 1.00 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	8US COST	TOTAL COST	SAVING
1980	26.90	40.21	776.97	1299.68	21.90	41.45	790.22	1394.50	21.90	62.21	182.25	482.71	3176.89						
1981	25.21	40.55	822.56	1380.67	20.21	42.22	808.11	1434.82	20.21	63.14	192.95	512.26	3327.75						
1982	23.52	40.98	868.15	1461.75	18.52	43.31	825.99	1485.63	18.52	64.79	203.64	547.86	3495.24						
1983	21.83	41.44	913.74	1543.86	16.83	44.53	843.88	1540.56	16.83	66.66	214.33	585.81	3670.23						
1984	20.14	41.93	959.32	1627.28	15.14	45.84	861.76	1598.83	15.14	68.69	225.03	625.64	3851.75						
1985	18.45	42.61	1004.91	1710.54	13.45	47.49	879.65	1677.02	13.45	70.63	235.72	668.27	4055.83						
1986	16.76	43.34	1059.14	1809.46	12.76	48.21	917.97	1770.62	12.76	71.45	248.44	710.23	4290.32						
1987	15.07	44.10	1113.36	1909.66	12.07	48.94	956.30	1866.41	12.07	72.30	261.16	753.02	4529.09						
1988	13.38	45.24	1167.58	2053.25	11.38	49.68	994.62	1964.48	11.38	73.17	273.88	796.69	4814.41						
1989	11.69	46.43	1221.80	2205.25	10.69	50.45	1032.95	2064.91	10.69	74.08	286.60	841.26	5111.41						
1990	10.00	47.66	1276.02	2364.33	10.00	51.23	1071.27	2167.80	10.00	75.01	299.31	886.80	5418.94						
1991	10.00	47.66	1308.96	2425.36	10.00	51.23	1099.96	2225.86	10.00	75.01	307.04	909.69	5560.91						

App. Table VIIA-4 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 107 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 17.28= 16.50* 1.0+ 0.0 * 1.2+ 0.60* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	42.60	37.49	706.60	457.82	37.60	37.26	667.22	429.59	37.60	57.64	165.75	165.08	1052.48
1981	39.84	37.85	749.83	490.38	34.84	37.67	685.10	445.94	34.84	57.97	175.89	176.18	1112.50
1982	37.08	38.35	793.05	525.61	32.08	38.25	702.99	464.70	32.08	58.56	186.02	188.23	1178.54
1983	34.32	38.87	836.28	561.66	29.32	38.93	720.87	484.94	29.32	59.29	196.16	200.97	1247.58
1984	31.56	39.34	879.50	597.85	26.56	39.69	738.76	506.73	26.56	60.17	206.30	214.49	1319.07
1985	28.80	39.84	922.72	635.28	23.80	40.64	756.64	531.37	23.80	61.27	216.44	229.14	1395.79
1986	26.04	40.38	974.34	679.93	22.04	41.39	792.71	566.91	22.04	62.14	228.55	245.40	1492.24
1987	23.28	41.04	1025.96	727.66	20.28	42.19	828.77	604.22	20.28	63.10	240.66	262.39	1594.27
1988	20.52	41.82	1077.58	778.65	18.52	43.31	864.83	647.30	18.52	64.79	252.77	282.99	1708.94
1989	17.76	42.90	1129.21	837.15	16.76	44.58	900.89	693.99	16.76	66.75	264.88	305.50	1836.63
1990	15.00	44.13	1180.83	900.44	15.00	45.95	936.95	744.01	15.00	68.87	276.98	329.63	1974.08
1991	15.00	44.13	1211.28	923.66	15.00	45.95	962.07	763.95	15.00	68.87	284.13	338.13	2025.75

VII-4

107 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 17.28= 16.50* 1.0+ 0.0 * 1.2+ 0.60* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	33.20	39.05	706.60	659.02	28.20	39.23	667.22	647.71	28.20	59.63	165.75	244.57	1551.30	498.82
1981	30.88	39.46	749.83	694.71	25.88	39.90	685.10	665.38	25.88	60.40	175.89	258.63	1618.73	506.23
1982	28.56	39.89	793.05	734.79	23.56	40.74	702.99	685.71	23.56	61.38	186.02	273.38	1693.89	515.35
1983	26.24	40.34	836.28	778.28	21.24	41.74	720.87	708.44	21.24	62.56	196.16	288.92	1775.64	528.06
1984	23.92	40.88	879.50	822.19	18.92	43.04	738.76	735.81	18.92	64.37	206.30	307.29	1865.29	546.22
1985	21.60	41.51	922.72	866.69	16.60	44.70	756.64	769.12	16.60	66.93	216.44	329.43	1965.24	569.46
1986	19.28	42.26	974.34	919.94	15.28	45.73	792.71	816.03	15.28	68.52	228.55	352.55	2088.52	596.28
1987	16.96	43.25	1025.96	973.46	13.96	46.98	828.77	870.43	13.96	70.04	240.66	376.80	2220.69	626.42
1988	14.64	44.37	1077.58	1032.80	12.64	48.33	864.83	928.74	12.64	71.59	252.77	402.09	2363.63	654.70
1989	12.32	45.98	1129.21	1121.47	11.32	49.75	900.89	989.69	11.32	73.25	264.88	428.44	2539.60	702.98
1990	10.00	47.66	1180.83	1215.68	10.00	51.23	936.95	1053.47	10.00	75.01	276.98	455.97	2725.12	751.03
1991	10.00	47.66	1211.28	1247.03	10.00	51.23	962.07	1081.70	10.00	75.01	284.13	467.73	2796.46	770.71

App. Table VIIA-5 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 110 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 13.50= 5.00* 1.0+ 6.00* 1.2+ 1.00* 1.3+ 0.0* 1.4+ 0.0* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	31.20	39.40	703.06	373.97	26.20	39.80	667.22	358.50	26.20	60.29	164.91	134.23	866.70
1981	29.58	39.70	747.11	400.38	24.58	40.33	685.18	373.02	24.58	60.91	175.25	144.10	917.50
1982	27.96	40.00	791.16	427.26	22.96	40.99	703.14	389.09	22.96	61.67	185.58	154.51	970.85
1983	26.34	40.32	835.21	454.66	21.34	41.70	721.09	405.93	21.34	62.51	195.91	165.32	1025.91
1984	24.72	40.67	879.26	482.74	19.72	42.51	739.05	424.10	19.72	63.54	206.25	176.92	1083.76
1985	23.10	41.09	923.31	512.21	18.10	43.61	757.01	445.65	18.10	65.24	216.58	190.76	1148.61
1986	21.48	41.54	976.06	547.36	17.48	44.05	793.07	471.61	17.48	65.93	228.95	203.77	1222.74
1987	19.86	42.03	1028.80	583.71	16.86	44.50	829.13	498.15	16.86	66.63	241.32	217.07	1298.94
1988	18.24	42.70	1081.55	623.43	16.24	44.97	865.20	525.30	16.24	67.35	253.70	230.68	1379.41
1989	16.62	43.40	1134.29	664.55	15.62	45.46	901.26	553.06	15.62	68.10	266.07	244.61	1462.23
1990	15.00	44.13	1187.03	707.17	15.00	45.95	937.32	581.49	15.00	68.87	278.44	258.88	1547.53
1991	15.00	44.13	1217.66	725.41	15.00	45.95	962.43	597.06	15.00	68.87	285.62	265.56	1588.04

VII-5

110 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 13.50= 5.00* 1.0+ 6.00* 1.2+ 1.00* 1.3+ 0.0* 1.4+ 0.0* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	25.90	40.41	703.06	511.52	20.90	41.90	667.22	512.91	20.90	62.75	164.91	189.85	1214.28	347.58
1981	24.31	40.77	747.11	545.25	19.31	42.78	685.18	531.45	19.31	63.96	175.25	203.24	1279.94	362.45
1982	22.72	41.20	791.16	579.17	17.72	43.88	703.14	552.77	17.72	65.66	185.58	218.32	1350.26	379.40
1983	21.13	41.64	835.21	613.53	16.13	45.06	721.09	575.17	16.13	67.49	195.91	234.05	1422.76	396.85
1984	19.54	42.16	879.26	648.23	14.54	46.40	739.05	600.58	14.54	69.38	206.25	250.59	1499.41	415.65
1985	17.95	42.82	923.31	682.94	12.95	48.01	757.01	631.79	12.95	71.22	216.58	268.14	1582.87	434.26
1986	16.36	43.51	976.06	724.51	12.36	48.63	793.07	668.56	12.36	71.94	228.95	285.53	1678.59	455.85
1987	14.77	44.28	1028.80	768.82	11.77	49.26	829.13	706.08	11.77	72.67	241.32	303.20	1778.10	479.17
1988	13.18	45.38	1081.55	828.14	11.18	49.90	865.20	744.37	11.18	73.43	253.70	321.18	1893.69	514.28
1989	11.59	46.50	1134.29	890.07	10.59	50.56	901.26	783.44	10.59	74.21	266.07	339.47	2012.99	550.76
1990	10.00	47.66	1187.03	954.74	10.00	51.23	937.32	823.34	10.00	75.01	278.44	358.10	2136.18	588.65
1991	10.00	47.66	1217.66	979.38	10.00	51.23	962.43	845.40	10.00	75.01	285.62	367.34	2192.12	604.08

App. Table VIIA-6

109 WITH BETTERMENT

REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 8.40 = 5.40 * 1.0 + 2.50 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	35.20	38.72	520.05	169.13	30.20	38.70	569.76	185.23	30.20	59.04	121.95	60.49	414.86
1981	33.18	39.06	557.12	182.78	28.18	39.24	588.16	193.85	28.18	59.64	130.68	65.47	442.10
1982	31.16	39.41	596.20	196.70	26.16	39.81	606.56	202.85	26.16	60.30	139.38	70.60	470.15
1983	29.14	39.78	631.27	210.93	24.14	40.50	624.95	212.62	24.14	61.11	148.08	76.01	499.56
1984	27.12	40.17	668.35	225.51	22.12	41.35	643.35	223.47	22.12	62.09	156.77	81.77	530.74
1985	25.10	40.58	705.42	240.44	20.10	42.28	661.74	235.00	20.10	63.20	165.47	87.85	563.29
1986	23.08	41.10	750.24	259.00	19.08	42.93	696.57	251.20	19.08	64.20	175.98	94.90	605.10
1987	21.06	41.66	795.06	278.23	18.06	43.64	731.39	268.08	18.06	65.29	186.50	102.27	648.58
1988	19.04	42.36	839.88	298.87	17.04	44.37	766.21	285.58	17.04	66.42	197.01	109.92	694.38
1989	17.02	43.22	884.70	321.21	16.02	45.14	801.03	303.75	16.02	67.62	207.52	117.87	742.83
1990	15.00	44.13	929.52	344.56	15.00	45.95	835.85	322.65	15.00	68.87	218.04	126.14	793.34
1991	15.00	44.13	953.53	353.46	15.00	45.95	858.26	331.30	15.00	68.87	223.67	129.39	814.15

109 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 8.64 = 5.40 * 1.0 + 2.70 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	32.00	39.26	520.05	241.68	27.00	39.57	569.76	276.59	27.00	60.02	121.99	89.83	608.09	193.23
1981	29.80	39.66	557.12	257.54	24.80	40.24	588.16	285.88	24.80	60.81	130.68	95.98	639.41	197.31
1982	27.60	40.07	594.20	275.76	22.60	41.14	606.56	296.69	22.60	61.85	139.38	102.49	674.94	204.79
1983	25.40	40.52	631.27	294.25	20.40	42.13	624.95	308.04	20.40	63.03	148.08	109.18	711.48	211.91
1984	23.20	41.07	668.35	312.83	18.20	43.54	643.35	322.34	18.20	65.13	156.77	117.51	752.69	221.94
1985	21.00	41.68	705.42	331.74	16.00	45.16	661.74	338.23	16.00	67.64	165.47	126.68	796.66	233.37
1986	18.80	42.46	750.24	354.52	14.80	46.15	696.57	360.72	14.80	69.09	175.98	136.44	851.68	248.58
1987	16.60	43.41	795.06	377.49	13.60	47.34	731.39	386.40	13.60	70.45	186.50	146.62	910.51	261.93
1988	14.40	44.54	839.88	403.97	12.40	48.58	766.21	413.10	12.40	71.89	197.01	157.16	974.23	279.86
1989	12.20	46.06	884.70	440.14	11.20	49.98	801.03	440.91	11.20	73.41	207.52	168.10	1049.14	306.31
1990	10.00	47.66	929.52	478.48	10.00	51.23	835.85	469.89	10.00	75.01	218.04	179.47	1127.84	334.50
1991	10.00	47.66	953.53	490.84	10.00	51.23	858.26	482.49	10.00	75.01	223.67	184.10	1157.43	343.28

App. Table VIIA-7 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 203 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 27.87= 2.00* 1.0+ 3.30* 1.2+ 5.00* 1.3+ 9.35* 1.4+ 1.55* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	35.30	38.70	507.93	547.89	30.30	38.68	568.67	613.11	30.30	59.01	119.14	155.98	1356.98
1981	33.27	39.04	531.70	578.65	28.27	39.21	578.74	632.58	28.27	59.61	124.72	207.23	1418.46
1982	31.24	39.39	555.47	609.97	26.24	39.79	588.82	653.06	26.24	60.28	130.29	218.52	1481.95
1983	29.21	39.77	579.24	642.06	24.21	40.47	598.89	675.69	24.21	61.08	135.87	231.31	1549.06
1984	27.18	40.16	603.01	674.97	22.18	41.33	608.97	701.49	22.18	62.06	141.45	244.71	1621.16
1985	25.15	40.57	626.78	708.76	20.15	42.25	619.04	729.10	20.15	63.17	147.02	258.89	1696.75
1986	23.12	41.09	654.39	749.48	19.12	42.91	642.98	768.99	19.12	64.16	153.50	274.51	1792.98
1987	21.09	41.65	682.00	791.83	18.09	43.61	666.93	810.81	18.09	65.25	159.98	290.98	1893.62
1988	19.06	42.36	709.62	837.81	17.06	44.36	690.87	854.22	17.06	66.40	166.45	308.09	2000.12
1989	17.03	43.22	737.23	888.15	16.03	45.14	714.82	899.34	16.03	67.61	172.93	325.89	2113.38
1990	15.00	44.13	764.85	940.84	15.00	45.95	738.76	946.31	15.00	68.87	179.41	344.42	2231.57
1991	15.00	44.13	784.60	965.13	15.00	45.95	758.54	971.66	15.00	68.87	184.04	353.31	2290.10

VII-7

203 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 28.16= 2.00* 1.0+ 3.30* 1.2+ 5.00* 1.3+ 8.00* 1.4+ 3.00* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	27.20	40.15	507.93	768.87	22.20	41.32	568.67	907.75	22.20	62.05	119.14	285.64	1962.27	605.29
1981	25.48	40.50	531.70	807.63	20.48	42.10	578.74	929.47	20.48	62.98	124.72	299.68	2036.79	618.33
1982	23.76	40.92	555.47	846.47	18.76	43.15	588.82	957.00	18.76	64.53	130.29	316.72	2120.19	638.23
1983	22.04	41.38	579.24	885.76	17.04	44.37	598.89	988.07	17.04	66.42	135.87	335.57	2209.40	660.34
1984	20.32	41.88	603.01	925.76	15.32	45.69	608.97	1021.18	15.32	68.47	141.45	355.42	2302.36	681.20
1985	18.60	42.55	626.78	965.72	13.60	47.34	619.04	1065.92	13.60	70.45	147.02	376.73	2408.38	711.62
1986	16.88	43.28	654.39	1012.02	12.88	48.08	642.98	1120.68	12.88	71.30	153.50	396.75	2529.46	736.47
1987	15.16	44.06	682.00	1058.97	12.16	48.84	666.93	1176.78	12.16	72.18	159.98	417.20	2652.95	759.33
1988	13.44	45.19	709.62	1128.89	11.44	49.62	690.87	1234.26	11.44	73.09	166.45	438.09	2801.23	801.12
1989	11.72	46.41	737.23	1204.29	10.72	50.41	714.82	1291.18	10.72	74.04	172.93	459.45	2956.92	843.54
1990	10.00	47.66	764.85	1283.20	10.00	51.23	738.76	1353.61	10.00	75.01	179.41	481.30	3118.11	886.54
1991	10.00	47.66	784.60	1316.34	10.00	51.23	758.54	1389.86	10.00	75.01	184.04	493.73	3199.92	909.83

App. Table VIIA-8 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 217 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 0.96= 0.0 * 1.0+ 0.80* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	57.50	36.33	580.66	20.25	52.50	36.38	671.23	23.44	52.50	57.40	136.20	7.50	51.20
1981	55.87	36.41	610.28	21.33	50.87	36.26	705.42	24.59	50.87	57.31	143.15	7.88	53.80
1982	54.24	36.49	639.90	22.42	49.24	36.24	741.61	25.80	49.24	57.25	150.10	8.25	56.47
1983	52.61	36.59	669.53	23.52	47.61	36.33	776.79	27.09	47.61	57.22	157.05	8.63	59.24
1984	50.98	36.70	699.15	24.63	45.98	36.43	811.98	28.40	45.98	57.21	164.00	9.01	62.03
1985	49.35	36.82	728.78	25.76	44.35	36.55	847.16	29.72	44.35	57.22	170.95	9.39	64.87
1986	47.72	36.96	763.55	27.09	42.72	36.68	905.93	31.90	42.72	57.28	179.10	9.85	68.84
1987	46.09	37.11	798.31	28.44	41.09	36.83	964.69	34.11	41.09	57.35	187.26	10.31	72.86
1988	44.46	37.28	833.08	29.81	39.46	37.01	1023.46	36.36	39.46	57.45	195.41	10.78	76.95
1989	42.83	37.47	867.85	31.22	37.83	37.23	1082.22	38.68	37.83	57.61	203.57	11.26	81.15
1990	41.20	37.67	902.62	32.64	36.20	37.46	1140.99	41.03	36.20	57.79	211.73	11.75	85.41
1991	39.57	37.90	925.92	33.68	34.57	37.72	1171.58	42.43	34.57	58.02	217.15	12.10	88.21

VII-8

217 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 0.96= 0.0 * 1.0+ 0.80* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	52.60	36.59	580.66	31.13	47.60	36.33	671.23	36.89	47.60	57.22	136.20	11.79	79.81	28.61
1981	50.15	36.75	610.28	32.33	45.15	36.48	706.42	38.39	45.15	57.21	143.15	12.20	82.92	29.12
1982	47.70	36.96	639.90	33.75	42.70	36.69	741.61	40.12	42.70	57.28	150.10	12.68	86.55	30.08
1983	45.25	37.19	669.53	35.18	40.25	36.91	776.79	41.88	40.25	57.39	157.05	13.16	90.22	30.99
1984	42.80	37.47	699.15	36.75	37.80	37.23	811.98	43.60	37.80	57.61	164.00	13.63	93.98	31.95
1985	40.35	37.77	728.78	38.36	35.35	37.58	847.16	45.32	35.35	57.89	170.95	14.09	97.77	32.90
1986	37.90	38.20	763.55	40.01	32.90	38.07	905.93	48.59	32.90	58.37	179.10	14.73	103.33	34.48
1987	35.45	38.67	798.31	41.62	30.45	38.64	964.69	51.99	30.45	58.97	187.26	15.40	109.01	36.14
1988	33.00	39.09	833.08	43.14	28.00	39.29	1023.46	55.20	28.00	59.69	195.41	16.01	114.35	37.40
1989	30.55	39.52	867.85	44.63	25.55	39.99	1082.22	58.40	25.55	60.52	203.57	16.62	119.65	38.50
1990	28.10	39.98	902.62	46.50	23.10	40.93	1140.99	61.91	23.10	61.60	211.73	17.29	125.71	40.29
1991	25.65	40.46	925.92	47.93	20.65	42.02	1171.58	64.10	20.65	62.89	217.15	17.79	129.82	41.61

App. Table VIIA-9 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 IIIA WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 11.14 = 8.50 * 1.0 + 2.20 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	43.30	37.41	580.66	242.00	38.30	37.16	671.23	277.89	38.30	57.56	136.20	87.34	607.23
1981	40.47	37.76	610.28	256.70	35.47	37.57	706.42	295.63	35.47	57.88	143.15	92.30	644.63
1982	37.64	38.25	639.90	272.66	32.64	38.13	741.61	315.00	32.64	58.43	150.10	97.70	685.36
1983	34.81	38.79	669.53	289.29	29.81	38.80	776.79	335.77	29.81	59.15	157.05	103.48	728.55
1984	31.98	39.26	699.15	305.81	26.98	39.57	811.98	357.96	26.98	60.03	164.00	109.66	773.43
1985	29.15	39.78	728.78	322.93	24.15	40.50	847.16	382.20	24.15	61.10	170.95	116.36	821.49
1986	26.32	40.33	763.55	343.02	22.32	41.26	905.93	416.44	22.32	61.99	179.10	123.69	883.14
1987	23.49	40.99	798.31	364.52	20.49	42.09	964.69	452.34	20.49	62.98	187.26	131.37	948.24
1988	20.66	41.78	833.08	387.70	18.66	43.22	1023.46	492.74	18.66	64.64	195.41	140.72	1021.16
1989	17.83	42.87	867.85	414.49	16.83	44.53	1082.22	536.82	16.83	66.66	203.57	151.18	1102.48
1990	15.00	44.13	902.62	443.73	15.00	45.95	1140.99	584.10	15.00	68.87	211.73	162.44	1190.26
1991	15.00	44.13	925.92	455.18	15.00	45.95	1171.58	606.72	15.00	68.87	217.19	166.63	1221.56

IIIA WITHOUT BETTERMENT
 LENGTH OF THE LINK (KM) 11.14 = 8.50 * 1.0 + 2.20 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	34.80	38.79	580.66	350.76	29.80	38.80	671.23	420.16	29.80	59.15	136.20	129.95	900.88	293.64
1981	32.32	39.21	610.28	366.01	27.32	39.48	706.42	442.13	27.32	59.91	143.15	135.98	944.11	299.49
1982	29.84	39.65	639.90	381.38	24.84	40.23	741.61	464.72	24.84	60.79	150.10	142.15	988.24	302.88
1983	27.36	40.12	669.53	400.81	22.36	41.25	776.79	490.27	22.36	61.97	157.05	148.93	1040.01	311.47
1984	24.88	40.63	699.15	420.63	19.88	42.40	811.98	517.33	19.88	63.38	164.00	156.18	1094.14	320.71
1985	22.40	41.28	728.78	440.53	17.40	44.11	847.16	551.13	17.40	66.02	170.95	166.45	1158.11	336.61
1986	19.92	42.00	763.55	464.17	15.92	45.22	905.93	597.48	15.92	67.74	179.10	176.94	1238.58	355.44
1987	17.44	43.04	798.31	487.80	14.44	46.50	964.69	647.98	14.44	69.49	187.26	187.96	1323.74	375.50
1988	14.96	44.16	833.08	512.24	12.96	48.00	1023.46	704.72	12.96	71.21	195.41	199.62	1416.58	395.42
1989	12.48	45.87	867.85	554.28	11.48	49.57	1082.22	764.32	11.48	73.04	203.57	211.84	1530.45	427.96
1990	10.00	47.66	902.62	599.07	10.00	51.23	1140.99	827.04	10.00	75.01	211.73	224.70	1650.81	460.55
1991	10.00	47.66	925.92	614.53	10.00	51.23	1171.58	849.21	10.00	75.01	217.19	230.50	1694.24	472.67

App. Table VIIA-10 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 111B WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 9.44* 5.50*1.0+ 2.20*1.2+ 1.00*1.3+ 0.0* 1.4+ 0.0* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	43.30	37.41	348.28	123.00	38.30	37.16	402.59	141.24	38.30	57.56	81.69	44.39	308.63
1981	41.47	37.63	366.07	130.05	36.47	37.42	423.76	149.69	36.47	57.76	85.87	46.82	326.56
1982	39.64	37.88	383.87	137.28	34.64	37.71	444.93	158.38	34.64	58.01	90.04	49.31	344.96
1983	37.81	38.22	401.67	144.91	32.81	38.09	466.10	167.60	32.81	58.39	94.22	51.93	364.45
1984	35.98	38.56	419.47	152.71	30.98	38.51	487.27	177.15	30.98	58.83	98.39	54.64	384.50
1985	34.15	38.90	437.27	160.55	29.15	38.97	508.44	187.07	29.15	59.34	102.57	57.46	405.08
1986	32.32	39.21	458.14	169.56	27.32	39.48	543.70	202.61	27.32	59.91	107.46	60.78	432.95
1987	30.49	39.53	479.01	178.75	25.49	40.01	578.96	218.69	25.49	60.54	112.36	64.22	461.65
1988	28.66	39.87	499.88	188.14	23.66	40.70	614.22	235.98	23.66	61.33	117.26	67.89	492.00
1989	26.83	40.23	520.76	197.74	21.83	41.68	649.48	254.31	21.83	62.25	122.15	71.78	523.83
1990	25.00	40.60	541.63	207.58	20.00	42.32	684.74	273.58	20.00	63.26	127.05	75.87	557.03
1991	23.17	41.07	555.58	215.42	19.00	42.99	703.06	285.29	19.00	64.28	130.32	79.08	579.80

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111B WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 11.14* 8.50*1.0+ 2.20*1.2+ 0.0* 1.3+ 0.0* 1.4+ 0.0* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	34.80	38.79	348.28	210.39	29.80	38.80	402.59	252.00	29.80	59.15	81.69	77.95	540.34	231.70
1981	32.32	39.21	366.07	219.55	27.32	39.48	423.76	265.22	27.32	59.91	85.87	81.57	566.34	239.78
1982	29.84	39.65	383.87	228.78	24.84	40.23	444.93	278.81	24.84	60.79	90.04	85.27	592.87	247.90
1983	27.36	40.12	401.67	240.46	22.36	41.25	466.10	294.18	22.36	61.97	94.22	89.35	623.99	259.54
1984	24.88	40.63	419.47	252.37	19.88	42.40	487.27	310.45	19.88	63.38	98.39	93.70	656.52	272.02
1985	22.40	41.28	437.27	264.32	17.40	44.11	508.44	330.77	17.40	66.02	102.57	99.87	694.96	289.88
1986	19.92	42.00	458.14	278.51	15.92	45.22	543.70	358.58	15.92	67.74	107.46	106.17	743.26	310.31
1987	17.44	43.04	479.01	292.69	14.44	46.50	578.96	388.88	14.44	69.49	112.36	112.78	794.36	332.71
1988	14.96	44.16	499.88	307.37	12.96	48.00	614.22	422.93	12.96	71.21	117.26	119.78	850.08	358.07
1989	12.48	45.87	520.76	332.60	11.48	49.57	649.48	458.70	11.48	73.04	122.15	127.12	918.41	394.58
1990	10.00	47.66	541.63	359.48	10.00	51.23	684.74	496.33	10.00	75.01	127.05	134.83	990.64	433.61
1991	10.00	47.66	555.58	368.74	10.00	51.23	703.06	509.61	10.00	75.01	130.32	138.31	1016.66	436.86

App. Table VIIA-11 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 112 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 6.65= 1.75* 1.0+ 3.00* 1.2+ 1.00* 1.3+ 0.0* 1.4+ 0.0* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	40.40	37.77	742.38	186.45	35.40	37.58	710.29	177.49	35.40	57.89	174.14	67.03	430.97
1981	37.86	38.21	780.93	198.42	32.66	38.08	745.84	188.87	32.66	58.38	183.18	71.11	458.41
1982	35.32	38.69	819.48	219.86	30.32	38.67	781.39	200.96	30.32	59.00	192.22	75.42	487.24
1983	32.78	39.13	858.04	223.25	27.78	39.35	816.94	213.76	27.78	59.76	201.27	79.99	517.00
1984	30.24	39.57	896.59	235.96	25.24	40.09	852.49	227.27	25.24	60.63	210.31	84.80	548.02
1985	27.70	40.05	935.14	249.08	22.70	41.10	888.04	242.72	22.70	61.80	219.35	90.15	581.95
1986	25.16	40.56	980.38	264.46	21.16	41.78	948.05	263.41	21.16	62.60	229.96	95.74	623.61
1987	22.62	41.22	1025.61	281.15	19.62	42.57	1008.06	285.39	19.62	63.64	240.57	101.82	668.35
1988	20.08	41.95	1070.84	298.71	18.08	43.62	1068.06	309.82	18.08	65.26	251.19	109.02	717.54
1989	17.54	43.00	1116.08	319.12	16.54	44.74	1128.07	335.66	16.54	67.00	261.80	116.65	771.43
1990	15.00	44.13	1161.31	340.80	15.00	45.95	1188.07	363.06	15.00	68.87	272.41	124.76	828.62
1991	15.00	44.13	1191.29	349.59	15.00	45.95	1219.90	372.79	15.00	68.87	279.44	127.98	850.36

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112 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 6.65= 1.75* 1.0+ 3.00* 1.2+ 1.00* 1.3+ 0.0* 1.4+ 0.0* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	36.10	38.54	742.38	268.47	31.10	38.48	710.29	264.77	31.10	58.80	174.14	99.18	632.42	201.45
1981	33.49	39.01	780.93	280.53	28.49	39.15	745.84	278.64	28.49	59.54	183.18	104.07	663.24	204.83
1982	30.88	39.46	819.48	292.19	25.88	39.90	781.39	292.05	25.88	60.40	192.22	108.78	693.02	205.78
1983	28.27	39.94	858.04	306.11	23.27	40.86	816.94	306.93	23.27	61.52	201.27	113.85	726.88	209.84
1984	25.66	40.46	896.59	321.49	20.66	42.01	852.49	323.10	20.66	62.88	210.31	119.30	763.89	215.87
1985	23.05	41.11	935.14	336.99	18.05	43.64	888.04	342.91	18.05	65.30	219.35	126.73	805.62	224.68
1986	20.44	41.84	980.38	352.33	16.44	44.82	948.05	371.41	16.44	67.12	229.96	134.91	861.66	238.05
1987	17.83	42.87	1025.61	373.78	14.83	46.12	1008.06	401.59	14.83	69.06	240.57	143.51	918.88	250.53
1988	15.22	44.03	1070.84	392.60	13.22	47.73	1068.06	437.09	13.22	70.90	251.19	152.69	982.38	264.83
1989	12.61	45.77	1116.08	424.67	11.61	49.43	1128.07	474.52	11.61	72.88	261.80	162.36	1061.54	290.12
1990	10.00	47.66	1161.31	460.11	10.00	51.23	1188.07	514.07	10.00	75.01	272.41	172.58	1146.75	318.14
1991	10.00	47.66	1191.29	471.99	10.00	51.23	1219.90	527.84	10.00	75.01	279.44	177.03	1176.86	326.50

App. Table VIIA-12 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 220 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 8.50= 5.90* 1.0+ 0.0 * 1.2+ 2.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	60.00	36.23	394.99	121.65	55.00	36.56	520.85	161.88	55.00	57.54	92.65	45.32	328.85
1981	59.69	36.24	416.98	128.46	54.69	36.54	527.13	163.72	54.69	57.52	97.81	47.83	340.01
1982	59.38	36.26	438.98	135.29	54.38	36.52	533.41	165.57	54.38	57.51	102.97	50.33	351.18
1983	59.07	36.27	460.98	142.11	54.07	36.49	539.69	167.41	54.07	57.49	108.13	52.84	362.35
1984	58.76	36.28	482.97	148.94	53.76	36.47	545.97	169.24	53.76	57.47	113.29	55.34	373.53
1985	58.45	36.29	504.97	155.78	53.45	36.45	552.24	171.08	53.45	57.45	118.45	57.84	384.70
1986	58.14	36.31	531.05	163.88	53.14	36.42	570.35	176.58	53.14	57.43	124.57	60.81	401.27
1987	57.83	36.32	557.12	171.99	52.83	36.40	588.45	182.07	52.83	57.42	130.68	63.78	417.84
1988	57.52	36.33	583.20	180.11	52.52	36.38	606.56	187.55	52.52	57.40	136.80	66.74	434.40
1989	57.21	36.35	609.27	188.23	52.21	36.35	624.66	193.03	52.21	57.38	142.92	69.71	450.97
1990	56.90	36.36	635.35	196.36	51.90	36.33	642.76	198.50	51.90	57.36	149.03	72.67	467.53
1991	56.59	36.37	651.73	201.50	51.59	36.31	659.99	203.70	51.59	57.35	152.87	74.52	479.72

220 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 8.50= 5.90* 1.0+ 0.0 * 1.2+ 2.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	44.70	37.25	394.99	183.69	39.70	36.98	520.85	248.45	39.70	57.43	92.65	68.64	500.78	171.93
1981	41.23	37.66	416.98	194.22	36.23	37.45	527.13	250.02	36.23	57.79	97.81	71.58	515.82	175.80
1982	37.76	38.23	438.98	203.63	32.76	38.10	533.41	253.36	32.76	58.40	102.97	74.96	531.95	180.76
1983	34.29	38.87	460.98	212.16	29.29	38.94	539.69	257.73	29.29	59.30	108.13	78.64	548.53	186.18
1984	30.82	39.47	482.97	220.07	25.82	39.91	545.97	260.84	25.82	60.42	113.29	81.94	562.85	189.32
1985	27.35	40.12	504.97	230.66	22.35	41.25	552.24	265.96	22.35	61.98	118.45	85.71	582.33	197.62
1986	23.88	40.89	531.05	244.22	19.88	42.40	570.35	277.27	19.88	63.38	124.57	90.51	612.00	210.72
1987	20.41	41.85	557.12	258.12	17.41	44.10	588.45	292.07	17.41	66.00	130.68	97.08	647.27	229.43
1988	16.94	43.26	583.20	272.21	14.94	46.01	606.56	308.30	14.94	68.94	136.80	104.18	684.69	250.28
1989	13.47	45.17	609.27	292.43	12.47	48.51	624.66	330.94	12.47	71.80	142.92	112.07	735.43	284.47
1990	10.00	47.66	635.35	321.75	10.00	51.23	642.76	355.49	10.00	75.01	149.03	120.68	797.93	330.39
1991	10.00	47.66	651.73	330.05	10.00	51.23	659.99	365.02	10.00	75.01	152.87	123.79	818.86	339.14

App. Table VIIA-13

219 WITH BETTERMENT

REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 6.65= 6.65* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	40.50	37.75	584.20	146.67	35.50	37.56	553.70	138.31	35.50	57.88	137.04	52.74	337.72				
1981	39.89	37.84	613.89	154.47	34.89	37.66	587.43	147.11	34.89	57.96	144.00	55.50	357.08				
1982	39.28	37.95	643.57	162.41	34.28	37.78	621.16	156.06	34.28	58.08	150.96	58.30	376.77				
1983	38.67	38.06	673.25	170.39	33.67	37.91	654.88	165.08	33.67	58.20	157.92	61.12	396.60				
1984	38.06	38.17	702.94	178.43	33.06	38.04	688.61	174.18	33.06	58.33	164.89	63.96	416.57				
1985	37.45	38.28	732.62	186.52	32.45	38.17	722.33	183.35	32.45	58.47	171.85	66.82	436.70				
1986	36.84	38.40	767.51	195.99	31.84	38.31	776.87	197.91	31.84	58.61	180.03	70.17	464.08				
1987	36.23	38.52	802.39	205.52	31.23	38.45	831.40	212.59	31.23	58.77	188.22	73.55	491.67				
1988	35.62	38.63	837.28	215.11	30.62	38.60	885.93	227.40	30.62	58.92	196.40	76.96	519.47				
1989	35.01	38.75	872.17	224.77	30.01	38.75	940.46	242.35	30.01	59.09	204.58	80.39	547.51				
1990	34.40	38.85	907.05	234.36	29.40	38.91	994.99	257.45	29.40	59.27	212.77	83.85	575.67				
1991	33.79	38.96	930.47	241.04	28.79	39.07	1021.63	265.44	28.79	59.45	218.26	86.28	592.76				

VII-13

219 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 6.65= 6.65* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	40.50	37.75	584.20	212.97	35.50	37.56	553.70	205.25	35.50	57.88	137.04	78.27	496.48	158.76				
1981	39.89	37.84	613.89	223.81	34.89	37.66	587.43	217.62	34.89	57.96	144.00	82.10	523.54	166.46				
1982	39.28	37.95	643.57	234.32	34.28	37.78	621.16	230.29	34.28	58.08	150.96	86.04	550.65	173.88				
1983	38.67	38.06	673.25	244.80	33.67	37.91	654.88	243.00	33.67	58.20	157.92	89.97	577.78	181.18				
1984	38.06	38.17	702.94	255.26	33.06	38.04	688.61	259.76	33.06	58.33	164.89	93.92	604.94	188.37				
1985	37.45	38.28	732.62	265.70	32.45	38.17	722.33	268.56	32.45	58.47	171.85	97.87	632.13	195.43				
1986	36.84	38.40	767.51	277.99	31.84	38.31	776.87	289.16	31.84	58.61	180.03	102.53	669.68	205.60				
1987	36.23	38.52	802.39	290.26	31.23	38.45	831.40	309.83	31.23	58.77	188.22	107.19	707.28	215.61				
1988	35.62	38.63	837.28	302.49	30.62	38.60	885.93	330.58	30.62	58.92	196.40	111.87	744.95	225.47				
1989	35.01	38.75	872.17	314.70	30.01	38.75	940.46	351.42	30.01	59.09	204.58	116.57	782.69	235.18				
1990	34.40	38.85	907.05	326.70	29.40	38.91	994.99	371.76	29.40	59.27	212.77	121.09	819.54	243.88				
1991	33.79	38.96	930.47	334.54	28.79	39.07	1021.63	381.68	28.79	59.45	218.26	124.07	840.29	247.52				

App. Table VIIA-14 REMARKS: CAR = Sedan SPEED = km/h UNIT : Operating cost Rp/km
 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 5.35= 1.75* 1.0+ 3.00* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL COST			
	SPEED	UNIT VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT VOLUME	TRUCK COST	BUS SPEED	BUS UNIT VOLUME	BUS COST				
1980	36.80	38.41	1309.73	269.12	31.80	38.32	428.87	87.92	31.80	58.62	307.22	96.36	453.40
1981	35.73	38.61	1372.82	283.60	30.73	38.57	440.34	90.87	30.73	58.89	322.02	101.46	475.93
1982	34.66	38.81	1435.91	298.15	29.66	38.84	451.80	93.88	29.66	59.19	336.82	106.66	498.70
1983	33.59	38.99	1499.00	312.68	28.59	39.12	463.26	96.97	28.59	59.51	351.62	111.95	521.59
1984	32.52	39.17	1562.09	327.36	27.52	39.42	474.72	100.12	27.52	59.85	366.42	117.32	544.79
1985	31.45	39.36	1625.19	342.20	26.45	39.73	486.18	103.33	26.45	60.20	381.22	122.79	568.32
1986	30.38	39.55	1698.92	359.47	25.38	40.05	509.17	109.09	25.38	60.58	398.51	129.16	597.72
1987	29.31	39.75	1772.65	376.95	24.31	40.43	532.17	115.12	24.31	61.03	415.81	135.76	627.83
1988	28.24	39.95	1846.39	394.63	23.24	40.87	555.16	121.40	23.24	61.53	433.10	142.58	658.60
1989	27.17	40.16	1920.12	412.53	22.17	41.33	578.16	127.84	22.17	62.07	450.40	149.56	689.93
1990	26.10	40.37	1993.86	430.65	21.10	41.81	601.15	134.46	21.10	62.64	467.70	156.73	721.84
1991	25.03	40.59	2045.30	444.17	20.03	42.31	617.29	139.73	20.03	63.24	479.76	162.32	746.22

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221 WITHOUT BETTERMENT
 LENGTH OF THE LINK (KM) 5.35= 1.75* 1.0+ 3.00* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL COST	SAVING			
	SPEED	UNIT VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT VOLUME	TRUCK COST	BUS SPEED	BUS UNIT VOLUME	BUS COST					
1980	36.80	38.41	1309.73	381.62	31.80	38.32	428.87	128.43	31.80	58.62	307.22	140.76	650.81	197.41
1981	35.73	38.61	1372.82	399.11	30.73	38.57	440.34	132.16	30.73	58.89	322.02	147.57	678.83	202.90
1982	34.66	38.81	1435.91	416.40	29.66	38.84	451.80	135.81	29.66	59.19	336.82	154.29	706.50	207.81
1983	33.59	38.99	1499.00	433.34	28.59	39.12	463.26	139.24	28.59	59.51	351.62	160.74	733.32	211.73
1984	32.52	39.17	1562.09	450.18	27.52	39.42	474.72	142.69	27.52	59.85	366.42	167.21	760.07	215.28
1985	31.45	39.36	1625.19	466.93	26.45	39.73	486.18	146.16	26.45	60.20	381.22	173.68	786.78	218.46
1986	30.38	39.55	1698.92	486.65	25.38	40.05	509.17	153.14	25.38	60.58	398.51	181.32	821.11	223.39
1987	29.31	39.75	1772.65	507.84	24.31	40.43	532.17	160.38	24.31	61.03	415.81	189.13	857.34	229.51
1988	28.24	39.95	1846.39	529.97	23.24	40.87	555.16	167.82	23.24	61.53	433.10	197.10	894.89	236.28
1989	27.17	40.16	1920.12	552.24	22.17	41.33	578.16	175.36	22.17	62.07	450.40	205.16	932.75	242.82
1990	26.10	40.37	1993.86	574.66	21.10	41.81	601.15	183.00	21.10	62.64	467.70	213.31	970.97	249.13
1991	25.03	40.59	2045.30	590.80	20.03	42.31	617.29	188.08	20.03	63.24	479.76	219.19	998.66	252.44

App. Table VIIA-15 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 210 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 23.20 = 9.40* 1.0+ 5.00* 1.2+ 2.60* 1.3+ 2.30* 1.4+ 0.80* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	50.00	36.76	213.16	181.81	45.00	36.49	46.35	39.25	45.00	57.21	50.00	66.36	287.42	
1981	49.88	36.77	249.17	212.58	44.88	36.50	68.33	57.87	44.88	57.21	58.45	77.58	348.02	
1982	49.76	36.78	285.18	243.37	44.76	36.51	90.30	76.49	44.76	57.21	66.89	88.79	408.65	
1983	49.64	36.79	321.19	274.17	44.64	36.52	112.27	95.13	44.64	57.22	75.34	100.01	469.31	
1984	49.52	36.80	357.20	305.00	44.52	36.53	134.25	113.78	44.52	57.22	83.79	111.23	530.00	
1985	49.40	36.81	393.21	335.84	44.40	36.54	156.22	132.44	44.40	57.22	92.24	122.45	590.72	
1986	49.28	36.82	438.57	374.67	44.28	36.55	149.50	126.78	44.28	57.23	102.87	136.58	638.03	
1987	49.16	36.83	483.92	413.54	44.16	36.56	142.79	121.12	44.16	57.23	113.51	150.71	685.36	
1988	49.04	36.84	529.27	452.42	44.04	36.57	136.07	115.45	44.04	57.23	124.15	164.84	732.71	
1989	48.92	36.85	574.62	491.32	43.92	36.58	129.36	109.78	43.92	57.24	136.79	178.98	780.09	
1990	48.80	36.87	619.98	530.25	43.80	36.59	122.64	104.11	43.80	57.24	145.43	193.12	827.48	
1991	48.68	36.88	636.00	544.11	43.68	36.60	125.92	100.93	43.68	57.24	149.19	198.12	849.16	

210 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 23.30 = 9.40* 1.0+ 5.00* 1.2+ 2.60* 1.3+ 1.30* 1.4+ 1.80* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	39.90	37.84	213.16	272.30	34.90	37.66	46.35	60.17	34.90	57.96	50.00	59.89	432.36	144.94	
1981	38.94	38.01	249.17	317.64	33.94	37.85	68.33	89.80	33.94	58.15	58.45	116.69	523.13	175.11	
1982	37.98	38.19	285.18	362.79	32.98	38.05	90.30	117.53	32.98	58.35	66.89	133.50	613.82	205.17	
1983	37.02	38.37	321.19	407.77	32.02	38.27	112.27	140.37	32.02	58.57	75.34	150.34	704.48	235.16	
1984	36.06	38.55	357.20	452.58	31.06	38.49	134.25	175.35	31.06	58.81	83.79	167.21	795.13	265.13	
1985	35.10	38.74	393.21	497.21	30.10	38.73	156.22	204.49	30.10	59.06	92.24	184.13	885.83	295.10	
1986	34.14	38.90	438.57	553.04	29.14	38.98	149.50	195.71	29.14	59.34	102.87	205.03	953.78	315.74	
1987	33.18	39.06	483.92	608.53	28.18	39.24	142.79	186.90	28.18	59.64	113.51	225.84	1021.27	335.91	
1988	32.22	39.22	529.27	663.72	27.22	39.50	136.07	178.13	27.22	59.95	124.15	246.62	1088.47	355.75	
1989	31.26	39.39	574.62	718.63	26.26	39.78	129.36	169.38	26.26	60.27	134.79	267.38	1155.39	375.30	
1990	30.30	39.56	619.98	773.26	25.30	40.07	122.64	167.65	25.30	60.61	145.43	288.14	1222.05	394.57	
1991	29.34	39.74	636.00	793.48	24.34	40.42	125.92	165.26	24.34	61.02	149.19	295.53	1254.27	405.10	

App. Table VIIA-16 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 123 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 7.10 = 7.10 * 1.0 + 0.0 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	50.00	36.76	228.83	59.73	45.00	36.49	48.91	12.67	45.00	57.21	53.68	21.80	94.20
1981	49.73	36.79	259.52	67.78	44.73	36.52	55.26	14.33	44.73	57.21	60.88	24.73	106.84
1982	49.46	36.81	290.21	75.84	44.46	36.54	61.61	15.98	44.46	57.22	68.07	27.66	119.48
1983	49.19	36.83	320.90	83.92	44.19	36.56	67.96	17.64	44.19	57.23	75.27	30.58	132.14
1984	48.92	36.85	351.59	92.00	43.92	36.58	74.31	19.30	43.92	57.24	82.47	33.51	144.82
1985	48.65	36.88	382.28	100.09	43.65	36.60	80.66	20.96	43.65	57.24	89.67	36.44	157.50
1986	48.38	36.90	420.59	110.20	43.38	36.63	89.79	23.35	43.38	57.25	98.66	40.10	173.65
1987	48.11	36.93	458.91	120.31	43.11	36.65	98.91	25.74	43.11	57.26	107.64	43.76	189.82
1988	47.84	36.95	497.22	130.44	42.84	36.67	108.04	28.13	42.84	57.27	116.63	47.43	206.00
1989	47.57	36.97	535.54	140.59	42.57	36.70	117.16	30.53	42.57	57.28	125.62	51.09	222.21
1990	47.30	37.00	573.86	150.75	42.30	36.72	126.29	32.93	42.30	57.29	134.61	54.76	238.43
1991	47.03	37.02	588.64	154.73	42.03	36.75	129.65	33.83	42.03	57.30	138.08	56.18	244.74

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23 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 7.10 = 7.10 * 1.0 + 0.0 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	39.50	37.91	228.83	89.00	34.50	37.74	48.91	19.35	34.50	58.03	53.68	32.67	141.02	46.81
1981	38.39	38.11	259.52	100.69	33.39	37.97	55.26	21.90	33.39	58.26	60.88	37.03	159.62	52.76
1982	37.28	38.32	290.21	112.33	32.28	38.21	61.61	24.46	32.28	58.51	68.07	41.39	178.19	58.71
1983	36.17	38.53	320.90	123.92	31.17	38.47	67.96	27.04	31.17	58.78	75.27	45.77	196.74	64.59
1984	35.06	38.74	351.59	135.46	30.06	38.74	74.31	29.64	30.06	59.07	82.47	50.17	215.27	70.46
1985	33.95	38.93	382.28	146.81	28.95	39.03	80.66	32.18	28.95	59.40	89.67	54.44	233.42	75.92
1986	32.84	39.12	420.59	161.01	27.84	39.33	89.79	35.81	27.84	59.74	98.66	59.78	256.60	82.95
1987	31.73	39.31	458.91	175.12	26.73	39.65	98.91	39.46	26.73	60.11	107.64	65.11	279.69	89.87
1988	30.62	39.51	497.22	189.15	25.62	39.97	108.04	43.12	25.62	60.50	116.63	70.44	302.71	96.70
1989	29.51	39.71	535.54	203.54	24.51	40.36	117.16	46.83	24.51	60.94	125.62	75.83	326.20	103.99
1990	28.40	39.92	573.86	218.53	23.40	40.81	126.29	50.64	23.40	61.46	134.61	81.29	350.46	112.03
1991	27.29	40.13	588.64	224.62	22.29	41.26	129.65	52.16	22.29	62.01	138.08	83.46	360.24	115.51

App. Table VIIA-17 REMARKS CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 127 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 13.90 = 13.90 * 1.0 + 0.0 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	53.50	36.54	996.64	506.15	48.50	36.28	311.71	157.19	48.50	57.24	233.78	185.99	849.33
1981	52.87	36.58	1036.84	527.13	47.87	36.31	309.37	156.16	47.87	57.23	243.21	193.46	876.75
1982	52.24	36.61	1077.05	548.16	47.24	36.35	307.04	155.14	47.24	57.22	252.64	200.94	904.23
1983	51.61	36.66	1117.26	569.25	46.61	36.39	304.70	154.12	46.61	57.21	262.07	208.41	931.79
1984	50.98	36.70	1157.47	590.40	45.98	36.43	302.37	153.11	45.98	57.21	271.50	215.90	959.41
1985	50.35	36.74	1197.68	611.62	45.35	36.47	300.03	152.10	45.35	57.21	280.94	223.39	987.11
1986	49.72	36.79	1243.62	635.91	44.72	36.52	302.80	153.70	44.72	57.21	291.71	231.99	1021.59
1987	49.09	36.84	1289.57	660.36	44.09	36.57	305.58	155.32	44.09	57.23	302.49	240.63	1056.32
1988	48.46	36.90	1335.51	684.90	43.46	36.62	308.35	156.96	43.46	57.25	313.27	249.29	1091.15
1989	47.83	36.95	1381.45	709.54	42.83	36.68	311.13	158.61	42.83	57.27	324.04	257.97	1126.11
1990	47.20	37.01	1427.40	734.27	42.20	36.73	313.90	160.27	42.20	57.30	334.82	266.66	1161.19
1991	46.57	37.07	1464.24	754.40	41.57	36.79	322.29	164.81	41.57	57.32	343.46	273.67	1192.88

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127 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 13.90 = 13.90 * 1.0 + 0.0 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	39.10	37.98	996.64	758.18	34.10	37.82	311.71	241.62	34.10	58.11	233.78	278.46	1278.26	428.93
1981	38.07	38.17	1036.84	787.03	33.07	38.03	309.37	240.17	33.07	58.33	243.21	289.57	1316.77	440.02
1982	37.04	38.36	1077.05	815.76	32.04	38.26	307.04	238.79	32.04	58.57	252.64	300.74	1355.29	451.05
1983	36.01	38.56	1117.26	844.39	31.01	38.50	304.70	237.45	31.01	58.82	262.07	312.00	1393.85	462.06
1984	34.98	38.76	1157.47	872.91	29.98	38.76	302.37	236.17	29.98	59.10	271.50	323.34	1432.42	473.00
1985	33.95	38.93	1197.68	900.49	28.95	39.03	300.03	234.30	28.95	59.40	280.94	333.90	1468.69	481.58
1986	32.92	39.10	1243.62	932.24	27.92	39.31	302.80	236.46	27.92	59.72	291.71	346.08	1514.78	493.19
1987	31.89	39.28	1289.57	963.83	26.89	39.60	305.58	238.66	26.89	60.06	302.49	358.29	1560.77	504.46
1988	30.86	39.46	1335.51	995.27	25.86	39.90	308.35	240.90	25.86	60.41	313.27	370.53	1606.70	515.54
1989	29.83	39.65	1381.45	1027.33	24.83	40.23	311.13	243.27	24.83	60.79	324.04	382.90	1653.50	527.39
1990	28.80	39.84	1427.40	1063.39	23.80	40.64	313.90	246.13	23.80	61.27	334.82	395.76	1705.28	544.09
1991	27.77	40.04	1464.24	1092.89	22.77	41.07	322.29	253.48	22.77	61.76	343.46	406.25	1752.62	559.74

App. Table VIIA-18 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 128 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 18.74= 15.30* 1.0+ 2.00* 1.2+ 0.80* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	53.90	36.51	928.93	635.63	48.90	36.26	330.32	224.44	48.90	57.24	217.90	233.75	1093.82				
1981	53.30	36.55	965.95	661.60	48.30	36.29	328.06	223.10	48.30	57.23	226.58	243.02	1127.73				
1982	52.70	36.59	1002.96	687.65	47.70	36.32	325.80	221.78	47.70	57.22	235.26	252.29	1161.72				
1983	52.10	36.62	1039.98	713.76	47.10	36.36	323.54	220.45	47.10	57.22	243.95	261.57	1195.78				
1984	51.50	36.66	1076.99	739.95	46.50	36.40	321.27	219.13	46.50	57.21	252.63	270.85	1229.93				
1985	50.90	36.70	1114.01	766.21	45.90	36.43	319.01	217.81	45.90	57.21	261.31	280.14	1264.17				
1986	50.30	36.74	1156.17	796.08	45.30	36.47	322.22	220.24	45.30	57.21	271.20	290.74	1307.07				
1987	49.70	36.79	1198.33	826.14	44.70	36.52	325.43	222.71	44.70	57.21	281.09	301.38	1350.23				
1988	49.10	36.84	1240.49	856.40	44.10	36.57	328.65	225.21	44.10	57.23	290.98	312.07	1393.68				
1989	48.50	36.89	1282.65	886.75	43.50	36.62	331.86	227.72	43.50	57.25	300.87	322.78	1437.26				
1990	47.90	36.94	1324.81	917.22	42.90	36.67	335.07	230.25	42.90	57.27	310.76	333.51	1480.99				
1991	47.30	37.00	1358.98	942.26	42.30	36.72	343.68	236.51	42.30	57.29	318.77	342.26	1521.03				

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128 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 19.00= 15.30* 1.0+ 2.00* 1.2+ 1.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	53.90	36.51	928.93	991.80	48.90	36.26	330.32	361.58	48.90	57.24	217.90	376.59	1729.97	636.15				
1981	53.30	36.55	965.95	1028.31	48.30	36.29	328.06	358.07	48.30	57.23	226.58	390.04	1776.42	648.69				
1982	52.70	36.59	1002.96	1064.61	47.70	36.32	325.80	354.59	47.70	57.22	235.26	403.38	1822.58	660.87				
1983	52.10	36.62	1039.98	1100.69	47.10	36.36	323.54	351.13	47.10	57.22	243.95	416.62	1868.45	672.67				
1984	51.50	36.66	1076.99	1136.57	46.50	36.40	321.27	347.70	46.50	57.21	252.63	429.76	1914.03	684.10				
1985	50.90	36.70	1114.01	1172.25	45.90	36.43	319.01	344.28	45.90	57.21	261.31	442.80	1959.33	695.17				
1986	50.30	36.74	1156.17	1213.12	45.30	36.47	322.22	346.79	45.30	57.21	271.20	457.78	2017.68	710.61				
1987	49.70	36.79	1198.33	1254.90	44.70	36.52	325.43	349.58	44.70	57.23	281.09	473.07	2077.55	727.32				
1988	49.10	36.84	1240.49	1297.73	44.10	36.57	328.65	352.68	44.10	57.23	290.98	488.72	2139.13	745.45				
1989	48.50	36.89	1282.65	1340.49	43.50	36.62	331.86	355.79	43.50	57.25	300.87	504.31	2200.59	763.33				
1990	47.90	36.94	1324.81	1383.20	42.90	36.67	335.07	358.90	42.90	57.27	310.76	519.86	2261.96	780.97				
1991	47.30	37.00	1358.98	1417.52	42.30	36.72	343.68	367.80	42.30	57.29	318.77	532.23	2317.55	795.52				

App. Table VIIA-19 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 148 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 55.90 = 41.00 * 1.0 + 2.00 * 1.2 + 1.00 * 1.3 + 8.00 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	50.00	36.76	147.23	302.57	45.00	36.49	22.63	46.17	45.00	57.21	34.54	110.44	459.18
1981	50.00	36.76	165.92	340.97	45.00	36.49	33.87	69.10	45.00	57.21	38.92	124.46	534.53
1982	50.00	36.76	184.60	379.37	45.00	36.49	45.11	92.03	45.00	57.21	43.30	138.47	605.88
1983	50.00	36.76	203.29	417.77	45.00	36.49	56.36	114.97	45.00	57.21	47.69	152.49	685.23
1984	50.00	36.76	221.97	456.17	45.00	36.49	67.60	137.90	45.00	57.21	52.07	166.51	760.58
1985	50.00	36.76	240.66	494.57	45.00	36.49	78.84	160.83	45.00	57.21	56.45	180.52	835.92
1986	50.00	36.76	270.64	556.18	45.00	36.49	90.59	184.81	45.00	57.21	63.48	203.01	944.00
1987	50.00	36.76	300.62	617.79	45.00	36.49	102.35	208.79	45.00	57.21	70.52	225.50	1052.07
1988	50.00	36.76	330.60	679.39	45.00	36.49	114.10	232.76	45.00	57.21	77.55	247.98	1160.14
1989	50.00	36.76	360.57	741.00	45.00	36.49	125.85	256.74	45.00	57.21	84.58	270.47	1268.21
1990	50.00	36.76	390.55	802.61	45.00	36.49	137.60	280.72	45.00	57.21	91.61	292.96	1376.29
1991	50.00	36.76	405.81	833.96	45.00	36.49	142.57	290.84	45.00	57.21	95.15	304.40	1429.21

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148 WITHOUT BETTERMENT
 LENGTH OF THE LINK (KM) 55.90 = 41.00 * 1.0 + 2.00 * 1.2 + 1.00 * 1.3 + 8.00 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	40.00	37.82	147.23	451.32	35.00	37.64	22.63	70.46	35.00	57.94	34.54	165.54	687.33	228.15
1981	39.61	37.89	165.92	508.17	34.61	37.71	33.87	105.52	34.61	58.01	38.92	186.49	800.18	265.65
1982	39.22	37.96	184.60	564.92	34.22	37.79	45.11	140.61	34.22	58.09	43.30	207.44	912.97	303.09
1983	38.83	38.03	203.29	621.58	33.83	37.87	56.36	175.74	33.83	58.17	47.69	228.39	1025.71	340.48
1984	38.44	38.10	221.97	678.14	33.44	37.96	67.60	210.92	33.44	58.25	52.07	249.34	1138.40	377.82
1985	38.05	38.17	240.66	734.61	33.05	38.04	78.84	246.15	33.05	58.34	56.45	270.29	1251.05	415.12
1986	37.66	38.25	270.64	825.43	32.66	38.12	90.59	283.03	32.66	58.42	63.48	303.93	1412.39	468.39
1987	37.27	38.32	300.62	916.11	32.27	38.21	102.35	319.96	32.27	58.51	70.52	337.58	1573.65	521.58
1988	36.88	38.39	330.60	1006.64	31.88	38.30	114.10	356.96	31.88	58.61	77.55	371.23	1734.84	574.70
1989	36.49	38.47	360.57	1097.03	31.49	38.39	125.85	394.03	31.49	58.70	84.58	404.91	1895.96	627.75
1990	36.10	38.54	390.55	1187.27	31.10	38.48	137.60	431.17	31.10	58.80	91.61	438.60	2057.04	680.76
1991	35.71	38.62	405.81	1232.64	30.71	38.58	142.57	447.10	30.71	58.90	95.15	455.78	2135.53	706.32

App. Table VIIA-20 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 150 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 31.30 = 31.30 * 1.0 + 0.0 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	60.00	36.23	107.91	122.38	55.00	36.56	217.17	248.55	55.00	57.54	25.31	45.59	416.52
1981	60.00	36.23	141.32	160.27	55.00	36.56	219.07	250.72	55.00	57.54	33.15	59.71	470.70
1982	60.00	36.23	174.73	198.16	55.00	36.56	220.97	252.89	55.00	57.54	40.99	73.82	524.87
1983	60.00	36.23	208.14	236.05	55.00	36.56	222.87	255.07	55.00	57.54	48.82	87.93	579.05
1984	60.00	36.23	241.55	273.93	55.00	36.56	224.77	257.24	55.00	57.54	56.66	102.05	633.22
1985	60.00	36.23	274.95	311.82	55.00	36.56	226.66	259.41	55.00	57.54	64.50	116.16	687.39
1986	60.00	36.23	304.99	345.89	55.00	36.56	233.53	267.26	55.00	57.54	71.54	128.85	742.00
1987	60.00	36.23	335.03	379.95	55.00	36.56	240.39	275.12	55.00	57.54	78.59	141.54	796.61
1988	60.00	36.23	365.07	414.02	55.00	36.56	247.25	282.97	55.00	57.54	85.63	154.23	851.22
1989	60.00	36.23	395.11	448.08	55.00	36.56	254.11	290.82	55.00	57.54	92.68	166.92	905.83
1990	60.00	36.23	425.14	482.15	55.00	36.56	260.97	298.68	55.00	57.54	99.73	179.61	960.44
1991	60.00	36.23	441.70	500.93	55.00	36.56	270.39	309.46	55.00	57.54	103.61	186.61	956.99

150 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 31.30 = 31.30 * 1.0 + 0.0 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	60.00	36.23	107.91	195.81	55.00	36.56	217.17	410.11	55.00	57.54	25.31	75.22	681.14	264.62
1981	60.00	36.23	141.32	256.43	55.00	36.56	219.07	413.69	55.00	57.54	33.15	98.51	768.64	297.94
1982	60.00	36.23	174.73	317.05	55.00	36.56	220.97	417.28	55.00	57.54	40.99	121.80	856.13	331.26
1983	60.00	36.23	208.14	377.67	55.00	36.56	222.87	420.86	55.00	57.54	48.82	145.09	943.62	364.58
1984	60.00	36.23	241.55	438.29	55.00	36.56	224.77	424.44	55.00	57.54	56.66	168.38	1031.12	397.90
1985	60.00	36.23	274.95	498.91	55.00	36.56	226.66	428.03	55.00	57.54	64.50	191.67	1118.61	431.22
1986	60.00	36.23	304.99	553.42	55.00	36.56	233.53	440.99	55.00	57.54	71.54	212.61	1207.01	465.01
1987	60.00	36.23	335.03	607.92	55.00	36.56	240.39	453.94	55.00	57.54	78.59	233.55	1295.42	498.80
1988	60.00	36.23	365.07	662.43	55.00	36.56	247.25	466.90	55.00	57.54	85.63	254.49	1383.82	532.59
1989	60.00	36.23	395.11	716.94	55.00	36.56	254.11	479.86	55.00	57.54	92.68	275.43	1472.22	566.39
1990	60.00	36.23	425.14	771.44	55.00	36.56	260.97	492.82	55.00	57.54	99.73	296.36	1560.62	600.18
1991	60.00	36.23	441.70	801.48	55.00	36.56	270.39	510.60	55.00	57.54	103.61	307.91	1619.99	623.00

App. Table VIIA-21 REMARKS: CAR = Sedan SPEED : km/h UNIT : operating cost Rp/km
 152 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 34.40= 33.20* 1.0+ 1.00* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	60.00	36.23	580.66	723.74	55.00	36.56	95.63	120.29	55.00	57.54	136.20	265.61	1113.63
1981	59.49	36.25	631.27	787.25	54.49	36.53	98.84	124.19	54.49	57.51	148.08	292.95	1204.39
1982	58.98	36.27	681.89	850.84	53.98	36.49	102.05	128.09	53.98	57.48	159.95	316.28	1255.20
1983	58.47	36.29	732.50	914.51	53.47	36.45	105.27	131.98	53.47	57.45	171.82	339.58	1386.07
1984	57.96	36.31	783.12	978.28	52.96	36.41	108.48	135.87	52.96	57.42	183.65	362.86	1477.00
1985	57.45	36.34	833.73	1042.14	52.45	36.37	111.69	139.75	52.45	57.39	195.57	386.12	1568.00
1986	56.94	36.36	906.82	1134.19	51.94	36.34	120.01	150.01	51.94	57.37	212.71	419.77	1703.96
1987	56.43	36.38	979.90	1226.38	51.43	36.30	128.33	160.25	51.43	57.34	229.85	453.39	1840.01
1988	55.92	36.41	1052.99	1318.70	50.92	36.26	136.66	170.47	50.92	57.31	247.00	486.98	1976.15
1989	55.41	36.43	1126.07	1411.17	50.41	36.23	144.98	180.67	50.41	57.29	264.14	520.56	2112.40
1990	54.90	36.46	1199.16	1503.82	49.90	36.20	153.30	190.92	49.90	57.27	281.28	554.13	2248.87
1991	54.39	36.48	1245.93	1563.72	49.39	36.23	158.85	197.98	49.39	57.26	292.25	575.62	2337.32

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152 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 34.40= 33.20* 1.0+ 1.00* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	60.00	36.23	580.66	1157.98	55.00	35.56	95.63	199.47	55.00	57.54	136.20	444.86	1801.31	687.67
1981	59.51	36.25	631.27	1255.71	54.51	36.53	98.84	204.32	54.51	57.51	148.08	481.95	1941.97	737.58
1982	59.02	36.27	681.89	1352.94	54.02	36.49	102.05	210.11	54.02	57.48	159.95	510.78	2081.83	786.62
1983	58.53	36.29	732.50	1449.68	53.53	36.45	105.27	215.86	53.53	57.46	171.82	555.34	2220.88	834.61
1984	58.04	36.31	783.12	1545.93	53.04	36.42	108.48	221.55	53.04	57.43	183.65	591.65	2359.13	882.13
1985	57.55	36.33	833.73	1641.69	52.55	36.38	111.69	227.20	52.55	57.40	195.57	627.70	2496.59	928.56
1986	57.06	36.35	906.82	1781.09	52.06	36.34	120.01	243.16	52.06	57.37	212.71	680.35	2704.60	1000.64
1987	56.57	36.38	979.90	1919.80	51.57	36.31	128.33	258.98	51.57	57.35	229.85	732.63	2911.41	1071.40
1988	56.08	36.40	1052.99	2057.80	51.08	36.27	136.66	274.68	51.08	57.32	247.00	784.54	3117.02	1140.87
1989	55.59	36.42	1126.07	2195.12	50.59	36.24	144.98	290.24	50.59	57.30	264.14	836.09	3321.45	1209.05
1990	55.10	36.44	1199.16	2331.74	50.10	36.21	153.30	305.68	50.10	57.27	281.28	887.27	3524.69	1275.83
1991	54.61	36.47	1245.93	2416.83	49.61	36.22	158.85	315.69	49.61	57.26	292.25	918.83	3651.54	1314.23

App. Table VIIA-22

REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 WITH BETTERMENT
 LENGTH OF THE LINK (KM) 9.89= 4.30* 1.0+ 1.00* 1.2+ 0.90* 1.3+ 2.30* 1.4+ 0.0 * 1.5
 VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

YEAR	CAR			TRUCK			BUS			TOTAL COST		
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME			
1980	31.00	39.44	528.03	26.00	39.86	523.04	206.19	26.00	60.56	123.86	73.94	466.08
1981	31.20	39.40	531.46	26.20	39.80	503.41	193.15	26.20	60.29	124.66	74.23	479.59
1982	31.40	39.37	534.89	26.40	39.74	483.77	190.14	26.40	60.22	125.47	74.73	473.12
1983	31.60	39.33	538.32	26.60	39.68	464.13	182.16	26.60	60.15	126.27	75.12	466.67
1984	31.80	39.30	541.75	26.80	39.62	444.50	174.19	26.80	60.09	127.08	75.52	460.25
1985	32.00	39.26	545.18	27.00	39.57	424.86	166.26	27.00	60.02	127.88	75.91	453.85
1986	32.60	39.16	546.66	27.60	39.40	409.89	159.71	27.60	59.82	128.23	75.85	447.27
1987	33.20	39.05	548.13	28.20	39.23	394.93	153.23	28.20	59.63	128.57	75.83	440.77
1988	33.80	38.95	549.61	28.80	39.07	379.96	146.81	28.80	59.45	128.92	75.79	434.34
1989	34.40	38.85	551.09	29.40	38.91	365.00	140.46	29.40	59.27	129.27	75.77	427.99
1990	35.00	38.76	552.57	30.00	38.75	350.03	134.16	30.00	59.09	129.61	75.75	421.70
1991	35.00	38.76	567.06	30.00	38.75	356.60	136.68	30.00	59.09	133.01	77.73	431.76

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LENGTH OF THE LINK (KM) 9.94= 4.30* 1.0+ 1.00* 1.2+ 0.90* 1.3+ 1.80* 1.4+ 0.50* 1.5.

YEAR	CAR			TRUCK			BUS			TOTAL COST	SAVING		
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME				
1980	32.10	39.24	528.03	27.10	39.54	523.04	292.11	27.10	59.99	123.86	104.54	679.47	153.56
1981	31.55	39.34	531.46	26.55	39.70	503.41	281.18	26.55	60.17	124.66	105.54	676.49	150.91
1982	31.00	39.44	534.89	26.00	39.86	483.77	270.26	26.00	60.36	125.47	105.14	661.57	165.45
1983	30.45	39.54	538.32	25.45	40.03	464.13	259.35	25.45	60.56	126.27	106.75	652.65	165.98
1984	29.90	39.64	541.75	24.90	40.20	444.50	248.50	24.90	60.76	127.08	107.38	643.94	165.89
1985	29.35	39.74	545.18	24.35	40.42	424.86	237.86	24.35	61.01	127.88	108.07	636.09	162.24
1986	28.80	39.84	546.66	23.80	40.64	409.89	229.83	23.80	61.27	128.23	108.39	629.43	162.17
1987	28.25	39.95	548.13	23.25	40.87	394.93	221.80	23.25	61.53	128.57	108.71	622.81	162.04
1988	27.70	40.05	549.61	22.70	41.10	379.96	213.75	22.70	61.80	128.92	109.05	616.20	161.85
1989	27.15	40.16	551.09	22.15	41.34	365.00	205.70	22.15	62.08	129.27	109.40	609.59	161.60
1990	26.60	40.27	552.57	21.60	41.58	350.03	197.63	21.60	62.37	129.61	109.75	602.99	161.28
1991	26.05	40.38	567.06	21.05	41.83	356.60	201.73	21.05	62.67	133.01	112.72	618.13	160.37

App. Table VIIA-23 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 214 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 18.60= 18.60* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL		
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME		CGST	
1980	33.00	39.09	75.10	28.00	39.29	414.64	302.98	28.00	59.69	17.61	19.56	377.14
1981	32.60	39.16	101.82	27.60	39.40	411.50	301.54	27.60	59.82	23.88	26.58	402.25
1982	32.20	39.23	128.55	27.20	39.51	408.36	300.10	27.20	59.95	30.15	33.62	427.51
1983	31.80	39.30	155.28	26.80	39.62	405.22	298.66	26.80	60.09	36.42	40.71	452.85
1984	31.40	39.37	182.00	26.40	39.74	402.08	297.22	26.40	60.22	42.69	47.82	478.30
1985	31.00	39.44	208.73	26.00	39.86	398.94	295.77	26.00	60.36	48.96	54.97	503.95
1986	30.40	39.55	231.79	25.40	40.04	403.47	300.48	25.40	60.57	54.37	61.26	522.23
1987	29.80	39.66	254.85	24.80	40.24	408.00	305.38	24.80	60.81	59.78	67.61	560.97
1988	29.20	39.77	277.91	24.20	40.48	412.52	310.59	24.20	61.08	65.19	74.06	590.21
1989	28.60	39.88	300.97	23.60	40.72	417.05	315.89	23.60	61.36	70.60	80.57	615.72
1990	28.00	40.00	324.03	23.00	40.97	421.57	321.28	23.00	61.65	76.01	87.16	645.45
1991	28.00	40.00	332.61	23.00	40.97	429.97	327.68	23.00	61.65	78.02	89.46	664.57

VII-23

214 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 18.70= 18.70* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL			
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME		CGST	SAVING	
1980	40.30	37.78	75.10	35.30	37.59	414.64	432.08	35.30	57.90	17.61	28.27	537.35	160.21
1981	40.27	37.78	101.82	35.27	37.60	411.50	428.79	35.27	57.90	23.88	38.33	571.52	169.24
1982	40.24	37.79	128.55	35.24	37.60	408.36	425.50	35.24	57.91	30.15	48.39	605.69	178.10
1983	40.21	37.79	155.28	35.21	37.60	405.22	422.22	35.21	57.91	36.42	58.44	635.86	187.01
1984	40.18	37.80	182.00	35.18	37.61	402.08	418.93	35.18	57.91	42.69	68.49	674.03	195.73
1985	40.15	37.80	208.73	35.15	37.61	398.94	415.64	35.15	57.92	48.96	76.55	708.20	204.35
1986	40.12	37.80	231.79	35.12	37.62	403.47	420.34	35.12	57.92	54.37	87.21	745.22	212.95
1987	40.09	37.81	254.85	35.09	37.62	408.00	425.04	35.09	57.93	59.78	95.88	782.24	221.27
1988	40.06	37.81	277.91	35.06	37.63	412.52	429.73	35.06	57.93	65.19	104.55	819.25	229.64
1989	40.03	37.81	300.97	35.03	37.63	417.05	434.43	35.03	57.93	70.60	113.21	856.26	236.55
1990	40.00	37.82	324.03	35.00	37.64	421.57	439.13	35.00	57.94	76.01	121.83	893.23	243.79
1991	39.97	37.82	332.61	34.97	37.64	429.97	447.69	34.97	57.94	78.02	125.10	914.03	249.46

App. Table VIIA-24
 108 WITH BETTERMENT

REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km

VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 31.10= 29.80* 1.0+ 0.0 * 1.2+ 1.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL			
	SPEED	UNIT	COST	SPEED	UNIT	COST	SPEED	UNIT	COST	SPEED	UNIT	COST	
1980	39.40	37.93	732.03	863.43	34.40	37.76	757.37	889.32	34.40	58.05	171.71	310.02	2062.76
1981	36.96	38.38	775.90	926.06	31.56	38.28	772.19	919.34	31.96	58.59	182.00	331.61	2177.02
1982	34.52	38.83	819.78	950.08	29.52	38.88	787.01	951.57	29.52	59.23	192.25	354.22	2295.87
1983	32.08	39.25	863.65	1054.15	27.08	39.54	801.83	986.12	27.08	59.99	202.58	377.98	2415.24
1984	29.64	39.69	907.53	1120.08	24.64	40.30	816.65	1023.63	24.64	60.88	212.88	403.05	2546.76
1985	27.20	40.15	951.40	1188.03	22.20	41.32	831.47	1068.99	22.20	62.05	223.17	430.68	2687.10
1986	24.76	40.66	1004.03	1269.58	20.76	41.97	866.00	1130.23	20.76	62.83	235.51	460.16	2855.97
1987	22.32	41.30	1056.65	1357.35	19.32	42.77	900.53	1197.87	19.32	63.95	247.66	492.95	3048.17
1988	19.88	42.02	1109.28	1449.60	17.88	43.76	935.06	1272.62	17.88	65.48	260.20	525.90	3252.12
1989	17.44	43.04	1161.90	1555.27	16.44	44.82	969.55	1351.53	16.44	67.12	272.55	568.91	3475.71
1990	15.00	44.13	1214.53	1666.84	15.00	45.95	1004.11	1435.03	15.00	68.87	284.85	610.20	3712.06
1991	15.00	44.13	1245.87	1709.85	15.00	45.95	1028.20	1469.46	15.00	68.87	292.24	625.94	3805.25

108 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 31.10= 29.80* 1.0+ 0.0 * 1.2+ 1.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL			
	SPEED	UNIT	COST	SPEED	UNIT	COST	SPEED	UNIT	COST	SPEED	UNIT	COST	
1980	26.90	40.21	732.03	1224.51	21.90	41.45	757.37	1336.53	21.90	62.21	171.71	454.79	3015.83
1981	25.21	40.55	775.90	1302.36	20.21	42.22	772.19	1371.05	20.21	63.14	182.00	493.21	3156.62
1982	23.52	40.98	819.78	1380.31	18.52	43.31	787.01	1415.52	18.52	64.79	192.25	517.34	3313.16
1983	21.83	41.44	863.65	1459.24	16.83	44.53	801.83	1463.80	16.83	66.66	202.58	553.70	3476.74
1984	20.14	41.93	907.53	1539.41	15.14	45.84	816.65	1515.13	15.14	68.69	212.88	591.86	3640.40
1985	18.45	42.61	951.40	1619.45	13.45	47.49	831.47	1585.17	13.45	70.63	223.17	632.68	3837.30
1986	16.76	43.34	1004.03	1715.31	12.76	48.21	866.00	1670.37	12.76	71.45	235.51	673.28	4053.96
1987	15.07	44.10	1056.65	1812.39	12.07	48.94	900.53	1757.56	12.07	72.30	247.66	714.67	4284.63
1988	13.38	45.24	1109.28	1950.72	11.38	49.68	935.06	1846.83	11.38	73.17	260.20	756.90	4554.45
1989	11.69	46.43	1161.90	2097.13	10.69	50.45	969.55	1938.24	10.69	74.08	272.55	800.02	4835.39
1990	10.00	47.66	1214.53	2250.39	10.00	51.23	1004.11	2031.90	10.00	75.01	284.85	844.07	5126.35
1991	10.00	47.66	1245.87	2308.45	10.00	51.23	1028.20	2080.65	10.00	75.01	292.24	865.85	5254.95

SAVING

APP. Table VIIA-25 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km

107 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 17.28= 16.50* 1.0+ 0.0 * 1.2+ 0.60* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	42.60	37.49	661.66	428.70	37.60	37.26	634.37	408.43	37.60	57.64	155.21	154.58	991.71
1981	35.84	37.85	703.17	459.87	34.84	37.67	649.19	422.56	34.84	57.97	164.94	165.22	1047.65
1982	37.08	38.35	744.68	493.55	32.08	38.25	664.01	438.93	32.08	58.56	174.68	176.75	1109.23
1983	34.32	36.87	786.19	528.03	29.32	38.93	678.83	455.65	29.32	59.29	184.42	188.94	1173.62
1984	31.56	39.34	827.70	562.64	26.56	39.69	693.65	475.79	26.56	60.17	194.15	201.86	1240.28
1985	28.80	39.84	869.21	598.43	23.80	40.64	708.46	497.53	23.80	61.27	203.89	215.85	1311.82
1986	26.04	40.38	919.23	641.47	22.04	41.39	740.73	529.74	22.04	62.14	215.62	231.52	1402.73
1987	23.28	41.04	969.26	687.44	20.28	42.19	773.00	563.56	20.28	65.10	227.36	247.89	1498.39
1988	20.52	41.82	1019.28	736.53	18.52	43.31	805.26	602.71	18.52	64.79	239.09	267.66	1606.91
1989	17.76	42.90	1069.31	792.74	16.76	44.58	837.53	645.18	16.76	66.75	250.82	289.29	1727.21
1990	15.00	44.13	1119.33	853.55	15.00	45.95	869.79	690.68	15.00	68.87	262.56	312.47	1856.69
1991	15.00	44.13	1148.30	875.64	15.00	45.95	890.23	706.91	15.00	68.87	269.36	320.55	1903.11

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107 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 17.28= 16.50* 1.0+ 0.0 * 1.2+ 0.60* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	33.20	39.05	661.66	617.10	28.20	39.23	634.37	615.82	28.20	59.63	155.21	229.02	1461.94	470.23
1981	30.88	39.46	703.17	651.49	25.88	39.90	649.19	630.50	25.88	60.40	164.94	242.54	1524.53	476.88
1982	28.56	39.89	744.68	689.98	23.56	40.74	664.01	647.69	23.56	61.38	174.68	256.71	1594.36	485.15
1983	26.24	40.34	786.19	731.67	21.24	41.74	678.83	667.12	21.24	62.56	184.42	271.61	1670.40	496.78
1984	23.92	40.88	827.70	773.76	18.92	43.04	693.65	690.88	18.92	64.37	194.15	289.19	1733.33	513.55
1985	21.60	41.51	869.21	816.42	16.60	44.70	708.46	720.15	16.60	66.93	203.89	310.33	1846.90	535.08
1986	19.28	42.26	919.23	867.91	15.28	45.73	740.73	762.52	15.28	68.52	215.62	332.61	1963.04	560.31
1987	16.96	43.25	969.26	919.66	13.96	46.98	773.00	811.85	13.96	70.04	227.36	355.98	2087.49	586.59
1988	14.64	44.37	1019.28	976.92	12.64	48.33	805.26	864.77	12.64	71.59	239.09	380.34	2222.03	615.12
1989	12.32	45.98	1069.31	1061.99	11.32	49.75	837.53	920.08	11.32	73.25	250.82	405.72	2387.78	640.57
1990	10.00	47.66	1119.33	1152.37	10.00	51.23	869.79	977.96	10.00	75.01	262.56	432.23	2562.55	705.85
1991	10.00	47.66	1148.30	1182.20	10.00	51.23	890.23	1000.94	10.00	75.01	269.36	443.41	2626.55	723.44

App. Table VIIA-26

REMARKS: CAR = Sedan UNIT : Operating cost Rp/km
 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 13.50 = 5.00* 1.0+ 6.00* 1.2+ 1.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL			
	SPEED	UNIT	CAR COST	SPEED	UNIT	TRUCK COST	SPEED	UNIT	BUS COST	SPEED	UNIT	BUS COST	TOTAL COST
1980	31.20	39.40	658.12	39.80	634.37	340.85	26.20	60.29	154.37	125.65	816.57		
1981	29.58	39.70	700.45	40.33	649.26	353.47	24.58	60.51	164.30	135.10	863.94		
1982	27.96	40.00	742.79	40.99	664.15	367.52	22.96	61.67	174.23	145.06	913.72		
1983	26.34	40.32	785.13	41.70	679.05	382.26	21.34	62.51	184.17	155.41	965.06		
1984	24.72	40.67	827.46	42.51	693.94	398.21	19.72	63.54	194.10	166.50	1019.01		
1985	23.10	41.09	869.80	43.61	708.83	417.28	18.10	65.24	204.03	179.70	1079.50		
1986	21.48	41.54	920.95	44.05	741.10	440.70	17.48	65.53	216.03	192.26	1145.42		
1987	19.86	42.03	972.10	44.50	773.36	464.65	16.86	66.63	228.02	205.11	1221.29		
1988	18.24	42.70	1023.24	44.57	805.63	489.13	16.24	67.55	240.02	216.25	1297.20		
1989	16.62	43.40	1074.39	45.46	837.89	514.18	15.62	68.10	252.02	231.70	1375.54		
1990	15.00	44.13	1125.54	45.95	870.16	539.82	15.00	68.87	264.02	245.47	1455.82		
1991	15.00	44.13	1154.81	45.95	890.60	552.50	15.00	68.87	270.88	251.85	1492.32		

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110 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 13.50 = 5.00* 1.0+ 6.00* 1.2+ 1.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL			
	SPEED	UNIT	CAR COST	SPEED	UNIT	TRUCK COST	SPEED	UNIT	BUS COST	SPEED	UNIT	BUS COST	TOTAL COST
1980	25.90	40.41	658.12	41.90	634.37	487.65	20.90	62.75	154.37	177.71	1144.19	327.63	
1981	24.31	40.77	700.45	42.78	649.26	503.59	19.31	63.96	164.30	190.55	1205.34	341.40	
1982	22.72	41.20	742.79	43.88	664.15	522.12	17.72	65.66	174.23	204.97	1270.86	357.14	
1983	21.13	41.64	785.13	45.06	679.05	541.63	16.13	67.49	184.17	220.02	1338.40	373.33	
1984	19.54	42.16	827.46	46.40	693.94	563.92	14.54	69.38	194.10	235.83	1409.30	390.78	
1985	17.95	42.82	869.80	48.01	708.83	591.56	12.95	71.22	204.03	252.60	1487.54	408.03	
1986	16.36	43.51	920.95	48.63	741.10	624.75	12.36	71.94	216.03	269.41	1577.75	428.53	
1987	14.77	44.28	972.10	49.26	773.36	658.59	11.77	72.67	228.02	286.49	1671.52	450.23	
1988	13.18	45.38	1023.24	49.90	805.63	693.12	11.18	73.43	240.02	303.87	1780.48	483.26	
1989	11.59	46.50	1074.39	50.56	837.89	728.36	10.59	74.21	252.02	321.55	1892.98	517.64	
1990	10.00	47.66	1125.54	51.23	870.16	764.35	10.00	75.01	264.02	339.55	2009.18	523.36	
1991	10.00	47.66	1154.81	51.23	890.60	782.30	10.00	75.01	270.88	348.38	2055.50	567.18	

App. Table VIIA-27 REMARKS: CAR = Sedan' SPEED : km/h UNIT : Operating cost Rp/km
 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 8.40= 5.40* 1.0+ 2.50* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL			
	SPEED	UNIT	COST	SPEED	UNIT	COST	SPEED	UNIT	COST	SPEED	UNIT	COST	
1980	25.00	40.60	475.11	162.02	20.00	42.32	536.91	190.89	20.00	63.26	111.45	59.22	412.13
1981	24.40	40.75	510.47	174.74	19.40	42.72	552.24	198.16	19.40	63.87	119.74	64.24	437.14
1982	23.80	40.91	545.83	187.56	18.80	43.12	567.57	205.59	18.80	64.49	128.03	69.36	462.50
1983	23.20	41.07	581.19	200.48	18.20	43.54	582.90	213.17	18.20	65.13	136.33	74.59	488.24
1984	22.60	41.23	616.55	213.52	17.60	43.96	598.23	220.92	17.60	65.79	144.62	79.93	514.37
1985	22.00	41.39	651.91	226.67	17.00	44.40	613.56	228.84	17.00	66.47	152.92	85.39	540.89
1986	25.60	40.47	695.13	236.33	20.60	42.04	644.55	227.63	20.60	62.92	163.06	86.17	550.13
1987	29.20	39.77	738.36	246.64	24.20	40.48	675.61	229.72	24.20	61.08	173.19	88.86	565.23
1988	32.80	39.12	781.58	256.85	27.80	39.34	706.64	233.52	27.80	59.76	183.33	92.03	582.40
1989	36.40	38.48	824.80	266.63	31.40	38.41	737.66	238.01	31.40	58.72	193.47	95.43	600.08
1990	40.00	37.82	868.03	275.75	35.00	37.64	768.69	243.02	35.00	57.94	203.61	99.09	617.86
1991	40.00	37.62	890.50	282.89	35.00	37.64	786.21	248.56	35.00	57.94	208.88	101.66	633.10

VII-27

IC9 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 8.64= 5.40* 1.0+ 2.70* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL			
	SPEED	UNIT	COST	SPEED	UNIT	COST	SPEED	UNIT	COST	SPEED	UNIT	COST	
1980	32.00	39.26	475.11	220.79	27.00	39.57	536.91	260.64	27.00	60.02	111.45	82.06	563.50
1981	29.80	39.66	510.47	235.97	24.80	40.24	552.24	268.42	24.80	60.81	119.74	87.95	592.34
1982	27.60	40.07	545.83	253.31	22.60	41.14	567.57	277.62	22.60	61.85	128.03	94.14	625.08
1983	25.40	40.52	581.19	270.91	20.40	42.13	582.90	287.32	20.40	63.03	136.33	100.52	658.74
1984	23.20	41.07	616.55	288.58	18.20	43.54	598.23	299.74	18.20	65.13	144.62	108.41	696.73
1985	21.00	41.68	651.91	306.58	16.00	45.16	613.56	313.61	16.00	67.64	152.92	117.07	737.25
1986	18.80	42.46	695.13	328.48	14.80	46.15	644.55	333.80	14.80	69.09	163.06	126.42	788.70
1987	16.60	43.41	738.36	350.57	13.60	47.34	675.61	356.93	13.60	70.45	173.19	136.16	843.67
1988	14.40	44.54	781.58	375.92	12.40	48.58	706.64	380.59	12.40	71.89	183.33	146.25	903.17
1989	12.20	46.06	824.80	410.34	11.20	49.88	737.66	400.03	11.20	73.41	193.47	156.72	973.09
1990	10.00	47.60	868.03	446.82	10.00	51.23	768.69	432.14	10.00	75.01	203.61	167.59	1046.56
1991	10.00	47.66	890.50	458.39	10.00	51.23	786.21	441.99	10.00	75.01	208.88	171.53	1072.31

App. Table VIIA-28 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 203 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 27.87= 2.00* 1.0+ 3.30* 1.2+ 5.00* 1.3+ 8.00* 1.4+ 1.55* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	25.00	40.60	462.99	523.95	20.00	42.32	535.82	632.16	20.00	63.26	103.60	191.50	1347.61
1981	24.60	40.70	485.04	550.28	19.60	42.59	542.83	644.38	19.60	63.86	113.78	201.91	1396.56
1982	24.20	40.80	507.10	576.76	19.20	42.85	549.84	656.77	19.20	64.07	118.95	212.45	1445.98
1983	23.80	40.91	529.15	603.38	18.80	43.12	556.84	669.34	18.80	64.49	124.12	223.14	1495.85
1984	23.40	41.01	551.21	630.15	18.40	43.40	563.85	682.09	18.40	64.92	129.30	233.97	1546.21
1985	23.00	41.12	573.27	657.08	18.00	43.68	570.86	695.03	18.00	65.35	134.47	244.96	1597.06
1986	27.20	40.15	599.28	670.73	22.20	41.32	591.01	680.66	22.20	62.05	140.57	243.15	1594.55
1987	31.40	39.37	625.30	686.16	26.40	39.74	611.16	677.03	26.40	60.22	146.67	246.22	1605.42
1988	35.60	38.64	651.32	701.50	30.60	38.60	631.30	679.34	30.60	58.93	152.78	250.96	1631.79
1989	39.80	37.85	677.33	714.71	34.80	37.68	651.45	684.17	34.80	57.98	158.88	256.76	1655.64
1990	44.00	37.33	703.35	731.89	39.00	37.07	671.60	693.97	39.00	57.49	164.98	264.41	1690.28
1991	44.00	37.33	721.68	750.97	39.00	37.07	686.56	709.44	39.00	57.49	169.28	271.30	1751.71
1992	44.00	37.33	740.01	770.04	39.00	37.07	701.53	724.90	39.00	57.49	173.58	278.19	1773.14

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203 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 28.16= 2.00* 1.0+ 3.30* 1.2+ 5.00* 1.3+ 8.00* 1.4+ 3.00* 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	27.20	40.15	462.99	700.85	22.20	41.32	535.82	855.32	22.20	62.05	108.60	260.37	1816.53	468.92
1981	25.48	40.50	485.04	736.77	20.48	42.10	542.83	871.79	20.48	62.98	113.78	273.39	1881.95	465.58
1982	23.76	40.92	507.10	772.76	18.76	43.15	549.84	893.64	18.76	64.53	118.95	289.14	1955.54	509.57
1983	22.04	41.38	529.15	809.18	17.04	44.37	556.84	918.70	17.04	66.42	124.12	306.56	2034.43	538.57
1984	20.32	41.88	551.21	846.24	15.32	45.69	563.85	945.53	15.32	68.47	129.30	324.89	2116.05	570.44
1985	18.60	42.55	573.27	883.27	13.60	47.34	570.86	982.96	13.60	70.45	134.47	344.56	2210.80	613.74
1986	16.88	43.28	599.28	926.79	12.88	48.08	591.01	1030.09	12.88	71.50	140.57	363.34	2320.25	725.63
1987	15.16	44.06	625.30	970.92	12.16	48.84	611.16	1078.37	12.16	72.18	146.67	382.51	2431.80	822.38
1988	13.44	45.19	651.32	1036.14	11.44	49.62	631.30	1127.64	11.44	73.09	152.78	402.09	2566.07	934.28
1989	11.72	46.41	677.33	1106.44	10.72	50.41	651.45	1178.55	10.72	74.04	158.88	422.11	2707.11	1051.47
1990	10.00	47.66	703.35	1180.03	10.00	51.23	671.60	1230.56	10.00	75.01	164.98	442.60	2853.19	1162.91
1991	10.00	47.66	721.68	1210.78	10.00	51.23	686.56	1257.98	10.00	75.01	169.28	454.14	2922.90	1191.19

App. Table VIIA-29 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 0.96= 0.0 * 1.0+ 0.80* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	57.50	36.33	535.72	18.69	52.50	36.38	638.38	22.29	52.50	57.40	125.66	6.92	47.50
1981	55.87	36.41	563.63	19.70	50.87	36.26	670.50	23.34	50.87	57.31	132.21	7.27	50.31
1982	54.24	36.49	591.54	20.72	49.24	36.24	702.62	24.44	49.24	57.25	138.76	7.63	52.79
1983	52.61	36.59	619.45	21.76	47.61	36.33	734.74	25.63	47.61	57.22	145.30	7.98	55.37
1984	50.98	36.70	647.35	22.81	45.98	36.43	766.86	26.82	45.98	57.21	151.85	8.34	57.96
1985	49.35	36.82	675.26	23.87	44.35	36.55	798.98	28.03	44.35	57.22	158.40	8.70	60.60
1986	47.72	36.96	708.44	25.14	42.72	36.68	853.95	30.07	42.72	57.28	166.18	9.14	64.35
1987	46.05	37.11	741.61	26.42	41.09	36.83	908.92	32.14	41.09	57.35	173.96	9.58	68.14
1988	44.46	37.28	774.78	27.73	39.46	37.01	963.89	34.25	39.46	57.45	181.74	10.02	72.00
1989	42.83	37.47	807.95	29.06	37.83	37.23	1018.86	36.41	37.83	57.61	189.52	10.48	75.96
1990	41.20	37.67	841.12	30.41	36.20	37.46	1073.83	38.62	36.20	57.79	197.30	10.95	79.96
1991	39.57	37.90	863.00	31.40	34.57	37.72	1099.74	39.83	34.57	58.02	202.43	11.28	82.50

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217 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 0.96= 0.0 * 1.0+ 0.80* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	52.60	36.59	535.72	28.72	47.60	36.33	638.38	35.09	47.60	57.22	125.66	10.88	74.69	26.78
1981	50.15	36.75	563.63	29.86	45.15	36.48	670.50	36.44	45.15	57.21	132.21	11.26	77.56	27.25
1982	47.70	36.96	591.54	31.20	42.70	36.69	702.62	38.01	42.70	57.28	138.76	11.72	80.93	28.14
1983	45.25	37.19	619.45	32.54	40.25	36.91	734.74	39.62	40.25	57.39	145.30	12.18	84.34	28.97
1984	42.80	37.47	647.35	34.03	37.80	37.23	766.86	41.18	37.80	57.61	151.85	12.62	87.83	29.86
1985	40.35	37.77	675.26	35.54	35.35	37.58	798.98	42.75	35.35	57.89	158.40	13.05	91.34	30.74
1986	37.90	38.20	708.44	37.13	32.90	38.07	853.95	45.80	32.90	58.37	166.18	13.66	96.59	32.24
1987	35.45	38.67	741.61	38.66	30.45	38.64	908.92	48.98	30.45	58.97	173.96	14.31	101.95	33.81
1988	33.00	39.09	774.78	40.12	28.00	39.29	963.89	51.98	28.00	59.69	181.74	14.89	107.00	35.00
1989	30.55	39.52	807.95	41.55	25.55	39.59	1018.86	54.98	25.55	60.52	189.52	15.48	112.01	36.05
1990	28.10	39.98	841.12	43.33	23.10	40.93	1073.83	58.27	23.10	61.60	197.30	16.11	117.72	37.74
1991	25.65	40.46	863.00	44.67	20.65	42.02	1099.74	60.17	20.65	62.69	202.43	16.58	121.42	38.93

App. Table VIIA-30 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 IIIA WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 11.14= 8.50* 1.0+ 2.20* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	ICIAL COST
1980	42.50	37.51	535.72	223.84	37.50	37.27	638.38	265.07	37.50	57.65	125.66	80.70	569.61
1981	41.70	37.60	563.63	236.11	36.70	37.39	670.50	279.25	36.70	57.73	132.21	85.03	600.40
1982	40.90	37.70	591.54	248.46	35.90	37.50	702.62	293.54	35.90	57.83	136.76	85.39	631.36
1983	40.10	37.81	619.45	260.83	35.10	37.62	734.74	307.93	35.10	57.92	145.30	93.76	662.58
1984	39.30	37.94	647.35	273.63	34.30	37.78	766.86	322.72	34.30	58.07	151.85	98.24	694.59
1985	38.50	38.09	675.26	286.53	33.50	37.94	798.98	337.71	33.50	58.24	158.40	102.76	727.00
1986	37.30	38.31	708.44	302.37	32.30	38.20	853.95	363.44	32.30	58.51	166.18	108.31	774.11
1987	36.10	38.54	741.61	318.41	31.10	38.48	903.92	389.65	31.10	58.80	173.96	113.94	822.01
1988	34.90	38.77	774.78	334.65	29.90	38.78	963.89	416.40	29.90	59.12	181.74	119.69	870.74
1989	33.70	38.97	807.95	350.75	28.70	39.10	1013.86	443.73	28.70	59.48	189.52	125.57	920.05
1990	32.50	39.17	841.12	367.06	27.50	39.43	1073.83	471.62	27.50	59.85	197.30	131.56	970.24
1991	32.50	39.17	863.00	376.61	27.50	39.43	1099.74	483.01	27.50	59.85	202.43	134.98	994.59

VII-30

IIIA WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 11.14= 8.50* 1.0+ 2.20* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	34.80	38.79	535.72	323.62	29.80	38.80	638.38	399.60	29.80	59.15	125.66	115.89	843.11	273.50
1981	32.32	39.21	563.63	338.03	27.32	39.48	670.50	419.65	27.32	59.91	132.21	125.58	883.26	282.67
1982	29.84	39.65	591.54	352.55	24.84	40.23	702.62	440.29	24.84	60.79	136.76	131.40	924.24	292.66
1983	27.36	40.12	619.45	370.83	22.36	41.25	734.74	463.74	22.36	61.97	145.30	137.79	972.35	309.78
1984	24.88	40.63	647.35	389.47	19.88	42.40	766.86	488.59	19.88	63.58	151.85	144.61	1022.66	328.07
1985	22.40	41.28	675.26	408.18	17.40	44.11	798.98	519.78	17.40	66.02	158.40	154.23	1082.19	355.19
1986	19.92	42.00	708.44	430.67	15.92	45.22	853.95	563.20	15.92	67.14	166.18	164.17	1158.05	383.92
1987	17.44	43.04	741.61	453.15	14.44	46.50	903.92	610.51	14.44	69.49	173.96	174.61	1238.28	416.27
1988	14.96	44.16	774.78	476.39	12.96	48.00	963.89	663.70	12.96	71.21	181.74	185.65	1325.74	455.01
1989	12.48	45.87	807.95	516.03	11.48	49.57	1018.86	719.57	11.48	73.04	189.52	197.22	1432.52	512.77
1990	10.00	47.66	841.12	558.26	10.00	51.23	1073.83	778.36	10.00	75.01	197.30	209.39	1546.00	575.76
1991	10.00	47.66	863.00	572.78	10.00	51.23	1099.74	797.14	10.00	75.01	202.43	214.84	1584.75	590.16

App. Table VIIA-31

REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

IIIB WITH BETTERMENT

LENGTH OF THE LINK (KM) 9.44= 5.50* 1.0+ 2.20* 1.2+ 1.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL COST			
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME				
1980	40.00	37.82	303.34	108.29	35.00	37.64	369.74	131.37	35.00	57.94	71.15	38.92	278.57
1981	39.40	37.93	319.42	114.36	34.40	37.76	405.88	144.66	34.40	58.05	74.93	41.06	300.08
1982	38.80	38.03	335.50	120.46	33.80	37.88	442.01	158.06	33.80	58.17	78.70	43.22	321.74
1983	38.20	38.15	351.59	126.60	33.20	38.01	478.15	171.55	33.20	58.30	82.47	45.39	343.54
1984	37.60	38.26	367.67	132.78	32.60	38.14	514.28	185.15	32.60	58.44	86.24	47.58	365.51
1985	37.00	38.37	383.75	139.00	32.00	38.27	550.42	198.86	32.00	58.58	90.02	49.78	387.64
1986	36.20	38.52	403.03	146.56	31.20	38.46	563.85	204.71	31.20	58.77	94.54	52.45	403.72
1987	35.40	38.68	422.31	154.19	30.40	38.65	577.28	210.64	30.40	58.98	99.06	55.16	419.99
1988	34.60	38.82	441.58	161.83	29.60	38.86	590.72	216.68	29.60	59.21	103.58	57.89	436.40
1989	33.80	38.95	460.86	169.47	28.80	39.07	604.15	222.81	28.80	59.45	108.10	60.66	452.94
1990	33.00	39.09	480.14	177.17	28.00	39.29	617.58	229.03	28.00	59.69	112.62	63.47	469.67
1991	33.00	39.09	492.55	181.75	28.00	39.29	631.08	234.04	28.00	59.69	115.54	65.11	480.90

IIIB WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 11.14= 8.50* 1.0+ 2.20* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL COST			
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME				
1980	34.80	38.79	303.34	183.24	29.80	38.80	369.74	231.44	29.80	59.15	71.15	67.89	482.57
1981	32.32	39.21	319.42	191.57	27.32	39.48	405.88	254.03	27.32	59.91	74.93	71.17	516.77
1982	29.84	39.65	335.50	199.96	24.84	40.23	442.01	276.98	24.84	60.79	78.70	74.53	551.47
1983	27.36	40.12	351.59	210.48	22.36	41.25	478.15	301.79	22.36	61.97	82.47	78.21	590.47
1984	24.88	40.63	367.67	221.20	19.88	42.40	514.28	327.66	19.88	63.38	86.24	82.13	631.00
1985	22.40	41.28	383.75	231.97	17.40	44.11	550.42	358.08	17.40	66.02	90.02	87.65	677.70
1986	19.92	42.00	403.03	245.01	15.92	45.22	563.85	371.87	15.92	67.74	94.54	93.40	710.27
1987	17.44	43.04	422.31	258.04	14.44	46.50	577.28	387.76	14.44	69.49	99.06	99.43	745.23
1988	14.96	44.16	441.58	271.52	12.96	48.00	590.72	406.75	12.96	71.21	103.58	105.81	784.07
1989	12.48	45.87	460.86	294.34	11.48	49.57	604.15	426.68	11.48	73.04	108.10	112.49	833.52
1990	10.00	47.66	480.14	318.67	10.00	51.23	617.58	447.65	10.00	75.01	112.62	119.52	885.84
1991	10.00	47.66	492.55	326.91	10.00	51.23	631.08	457.44	10.00	75.01	115.54	122.62	906.96

App. Table VIIA-32 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 112 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 6.65= 1.75* 1.0+ 3.00* 1.2+ 1.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	40.40	37.77	697.44	175.16	35.40	37.58	677.44	169.28	35.40	57.89	163.60	62.98	407.42
1981	37.86	38.21	734.28	186.57	32.86	38.08	709.92	179.78	32.86	58.36	172.24	66.86	433.21
1982	35.32	38.69	771.11	198.42	30.32	38.67	742.41	190.93	30.32	59.00	180.88	70.97	460.32
1983	32.78	39.13	807.95	210.22	27.78	39.35	774.89	202.76	27.78	59.76	189.52	75.52	488.30
1984	30.24	39.57	844.79	222.33	25.24	40.09	807.38	215.24	25.24	60.63	198.16	79.50	517.47
1985	27.70	40.05	881.63	234.83	22.70	41.10	839.86	229.55	22.70	61.80	206.80	84.99	545.37
1986	25.16	40.56	925.27	249.60	21.16	41.78	896.07	248.97	21.16	62.60	217.04	80.36	582.92
1987	22.62	41.22	968.90	265.61	19.62	42.57	952.28	269.60	19.62	63.64	227.27	86.19	631.39
1988	20.08	41.95	1012.54	282.44	18.08	43.62	1008.49	292.54	18.08	65.26	237.51	93.08	678.07
1989	17.54	43.00	1056.18	301.99	16.54	44.74	1064.70	316.81	16.54	67.00	247.75	100.39	729.19
1990	15.00	44.13	1099.82	322.75	15.00	45.95	1120.91	342.54	15.00	68.87	257.98	118.15	783.44
1991	15.00	44.13	1128.20	331.08	15.00	45.95	1147.92	350.79	15.00	68.87	264.64	121.20	803.07

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112 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 6.65= 1.75* 1.0+ 3.00* 1.2+ 1.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	36.10	38.54	657.44	252.22	31.10	38.48	677.44	252.52	31.10	58.80	163.60	93.18	597.92	190.50
1981	33.49	39.01	734.28	263.77	28.49	39.15	709.92	265.22	28.49	59.54	172.24	97.86	626.84	193.64
1982	30.88	39.46	771.11	274.94	25.88	39.90	742.41	277.48	25.88	60.40	180.88	102.36	654.78	194.45
1983	28.27	39.94	807.95	288.24	23.27	40.86	774.89	291.13	23.27	61.52	189.52	107.20	686.57	198.28
1984	25.66	40.46	844.75	302.92	20.66	42.01	807.38	306.00	20.66	62.88	198.16	112.41	721.33	203.87
1985	23.05	41.11	881.63	317.71	18.05	43.64	839.86	324.30	18.05	65.30	206.80	119.48	741.48	212.12
1986	20.44	41.84	925.27	335.36	16.44	44.82	896.07	351.05	16.44	67.12	217.04	127.33	761.74	224.52
1987	17.83	42.87	968.90	353.11	14.83	46.12	952.28	379.37	14.83	69.06	227.27	135.58	788.06	236.67
1988	15.22	44.03	1012.54	371.22	13.22	47.73	1008.49	412.71	13.22	70.90	237.51	144.38	828.31	250.25
1989	12.61	45.77	1056.18	401.88	11.61	49.43	1064.70	447.86	11.61	72.88	247.75	153.64	881.38	274.20
1990	10.00	47.66	1099.82	435.74	10.00	51.23	1120.91	485.01	10.00	75.01	257.98	163.44	954.19	300.75
1991	10.00	47.66	1128.20	446.99	10.00	51.23	1147.92	496.70	10.00	75.01	264.64	167.65	1011.34	308.27

App. Table VIIA-33

REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km

220 WITH BETTERMENT

VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 8.50= 5.90* 1.0+ 0.0 * 1.2+ 2.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	60.00	36.23	350.05	107.81	55.00	36.56	488.00	151.67	55.00	57.54	82.11	40.16	299.64
1981	59.69	36.24	370.33	114.09	54.69	36.54	491.22	152.57	54.69	57.52	86.87	42.47	305.13
1982	59.38	36.26	390.61	120.38	54.38	36.52	494.43	153.47	54.38	57.51	91.63	44.79	318.63
1983	59.07	36.27	410.89	126.67	54.07	36.49	497.64	154.36	54.07	57.49	96.38	47.10	328.13
1984	58.76	36.28	431.18	132.97	53.76	36.47	500.85	155.26	53.76	57.47	101.14	49.40	337.63
1985	58.45	36.29	451.46	139.27	53.45	36.45	504.06	156.15	53.45	57.45	105.90	51.71	347.14
1986	58.14	36.31	475.94	146.88	53.14	36.42	518.37	160.49	53.14	57.43	111.64	54.50	361.86
1987	57.83	36.32	500.42	154.49	52.83	36.40	532.68	164.81	52.83	57.42	117.38	57.29	376.58
1988	57.52	36.33	524.90	162.10	52.52	36.38	546.99	169.13	52.52	57.40	123.12	60.07	391.31
1989	57.21	36.35	549.38	169.73	52.21	36.35	561.30	173.45	52.21	57.38	128.87	62.85	406.03
1990	56.90	36.36	573.86	177.36	51.90	36.33	575.60	177.76	51.90	57.36	134.61	65.64	420.75
1991	56.59	36.37	588.64	182.00	51.59	36.31	588.01	181.48	51.59	57.35	138.08	67.31	430.78

220 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 8.50= 5.90* 1.0+ 0.0 * 1.2+ 2.00* 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	44.70	37.25	350.05	162.79	39.70	36.98	483.00	232.78	39.70	57.43	82.11	60.53	456.40	156.76
1981	41.23	37.66	370.33	172.49	36.23	37.45	491.22	232.99	36.23	57.79	86.87	63.57	469.04	159.91
1982	37.76	38.23	390.61	181.19	32.76	38.10	494.43	234.84	32.76	58.40	91.63	66.70	482.73	164.10
1983	34.29	38.87	410.89	189.11	29.29	38.94	497.64	237.65	29.29	59.30	96.38	70.10	496.85	168.72
1984	30.82	39.47	431.18	196.47	25.82	39.91	500.85	239.28	25.82	60.42	101.14	73.15	503.90	171.27
1985	27.35	40.12	451.46	206.22	22.35	41.25	504.06	242.75	22.35	61.98	105.90	76.62	525.60	176.46
1986	23.88	40.89	475.94	218.87	19.88	42.40	518.37	252.00	19.88	63.38	111.64	81.12	551.99	190.13
1987	20.41	41.85	500.42	231.85	17.41	44.10	532.68	264.39	17.41	66.00	117.38	87.20	583.44	206.55
1988	16.94	43.26	524.90	244.99	14.54	46.01	546.99	278.03	14.94	68.54	123.12	93.76	616.78	223.48
1989	13.47	45.17	549.38	263.68	12.47	48.51	561.30	297.37	12.47	71.80	128.87	101.05	662.10	256.07
1990	10.00	47.66	573.86	290.61	10.00	51.23	575.60	318.35	10.00	75.01	134.61	105.00	717.96	297.21
1991	10.00	47.66	588.64	298.10	10.00	51.23	588.01	325.21	10.00	75.01	138.08	111.61	735.12	304.33

219 WITH BETTERMENT

VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 6.65= 6.65* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	40.50	37.75	539.27	135.39	35.50	37.56	520.85	130.10	35.50	57.88	126.49	48.68	314.18				
1981	39.89	37.84	567.23	142.73	34.89	37.66	551.51	138.11	34.89	57.96	133.05	51.28	332.13				
1982	39.28	37.95	595.20	150.20	34.28	37.78	582.17	146.27	34.28	58.08	139.62	53.92	350.39				
1983	38.67	38.06	623.17	157.72	33.67	37.91	612.83	154.48	33.67	58.20	146.18	56.58	368.78				
1984	38.06	38.17	651.14	165.28	33.06	38.04	643.49	162.77	33.06	58.33	152.74	59.25	387.30				
1985	37.45	38.28	679.11	172.90	32.45	38.17	674.15	171.12	32.45	58.47	159.30	61.94	405.96				
1986	36.84	38.40	712.40	181.92	31.84	38.31	724.89	184.67	31.84	58.61	167.11	65.14	431.72				
1987	36.23	38.52	745.69	191.00	31.23	38.45	775.62	198.33	31.23	58.77	174.91	68.35	457.68				
1988	35.62	38.63	778.98	200.14	30.62	38.60	826.36	212.11	30.62	58.92	182.72	71.60	483.85				
1989	35.01	38.75	812.27	209.33	30.01	38.75	877.09	226.02	30.01	59.09	190.53	74.87	510.22				
1990	34.40	38.85	845.56	218.47	29.40	38.91	927.83	240.07	29.40	59.27	198.34	78.17	536.71				
1991	33.79	38.96	867.44	224.71	28.79	39.07	949.73	246.76	28.79	59.45	203.47	80.44	551.91				

219 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 6.65= 6.65* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	40.50	37.75	539.27	196.59	35.50	37.56	520.85	193.07	35.50	57.88	126.49	72.25	461.90				
1981	39.89	37.84	567.23	206.80	34.89	37.66	551.51	204.32	34.89	57.96	133.05	75.86	486.98				
1982	39.28	37.95	595.20	216.71	34.28	37.78	582.17	215.64	34.28	58.08	139.62	79.57	512.12				
1983	38.67	38.06	623.17	226.59	33.67	37.91	612.83	227.40	33.67	58.20	146.18	83.28	537.28				
1984	38.06	38.17	651.14	236.45	33.06	38.04	643.49	239.00	33.06	58.33	152.74	87.00	562.45				
1985	37.45	38.28	679.11	246.29	32.45	38.17	674.15	250.65	32.45	58.47	159.30	90.72	587.66				
1986	36.84	38.40	712.40	258.03	31.84	38.31	724.89	269.81	31.84	58.61	167.11	95.17	623.01				
1987	36.23	38.52	745.69	269.74	31.23	38.45	775.62	289.04	31.23	58.77	174.91	99.62	658.41				
1988	35.62	38.63	778.98	281.43	30.62	38.60	826.36	308.35	30.62	58.92	182.72	104.08	693.37				
1989	35.01	38.75	812.27	293.09	30.01	38.75	877.09	327.74	30.01	59.09	190.53	108.56	729.39				
1990	34.40	38.85	845.56	304.55	29.40	38.91	927.83	346.66	29.40	59.27	198.34	112.88	764.09				
1991	33.79	38.96	867.44	311.88	28.79	39.07	949.73	354.82	28.79	59.45	203.47	115.66	782.35				

App. Table VIIA-35 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km

221 WITH BETTERMENT

LENGTH OF THE LINK (KM) 5.35= 1.75* 1.0+ 3.00* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	
1980	36.80	38.41	1264.79	259.89	31.80	38.32	396.02	81.19	31.80	58.62	296.68	93.05	434.13
1981	35.73	38.61	1326.17	273.96	30.73	38.57	404.42	83.46	30.73	58.89	311.08	98.02	455.43
1982	34.66	38.81	1387.54	288.11	29.66	38.84	412.81	85.78	29.66	59.19	325.47	103.06	476.96
1983	33.59	38.99	1448.92	302.23	28.59	39.12	421.21	88.17	28.59	59.51	339.87	108.21	498.60
1984	32.52	39.17	1510.30	316.50	27.52	39.42	429.60	90.60	27.52	59.85	354.27	113.43	520.53
1985	31.45	39.36	1571.67	330.93	26.45	39.73	438.00	93.09	26.45	60.20	368.66	118.75	542.77
1986	30.38	39.55	1643.81	347.81	25.38	40.05	457.20	97.95	25.38	60.58	385.59	124.97	570.74
1987	29.31	39.75	1715.95	364.89	24.31	40.43	476.40	103.06	24.31	61.03	402.51	131.42	599.37
1988	28.24	39.95	1788.09	382.17	23.24	40.87	495.60	108.37	23.24	61.53	419.43	138.08	628.61
1989	27.17	40.16	1860.23	399.66	22.17	41.33	514.80	113.83	22.17	62.07	436.35	144.90	658.38
1990	26.10	40.37	1932.37	417.37	21.10	41.81	533.99	119.44	21.10	62.64	453.27	151.90	688.71
1991	25.03	40.59	1982.33	430.50	20.03	42.31	545.31	123.44	20.03	63.24	464.99	157.33	711.26

221 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 5.35= 1.75* 1.0+ 3.00* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING	
1980	36.80	38.41	1264.79	368.52	31.80	38.32	396.02	118.60	31.80	58.62	296.68	135.93	623.05	188.92
1981	35.73	38.61	1326.17	385.54	30.73	38.57	404.42	121.38	30.73	58.89	311.08	142.55	649.47	194.04
1982	34.66	38.81	1387.54	402.38	29.66	38.84	412.81	124.09	29.66	59.19	325.47	149.09	675.56	198.60
1983	33.59	38.99	1448.92	418.86	28.59	39.12	421.21	126.60	28.59	59.51	339.87	155.37	700.83	202.23
1984	32.52	39.17	1510.30	435.25	27.52	39.42	429.60	129.13	27.52	59.85	354.27	161.66	726.04	205.51
1985	31.45	39.36	1571.67	451.56	26.45	39.73	438.00	131.68	26.45	60.20	368.66	167.97	751.20	208.43
1986	30.38	39.55	1643.81	470.87	25.38	40.05	457.20	137.51	25.38	60.58	385.59	175.44	783.81	213.07
1987	29.31	39.75	1715.95	491.59	24.31	40.43	476.40	143.57	24.31	61.03	402.51	183.08	818.24	218.88
1988	28.24	39.95	1788.09	513.23	23.24	40.87	495.60	149.81	23.24	61.53	419.43	190.88	853.92	225.31
1989	27.17	40.16	1860.23	535.01	22.17	41.33	514.80	156.14	22.17	62.07	436.35	198.76	889.91	231.52
1990	26.10	40.37	1932.37	556.94	21.10	41.81	533.99	162.56	21.10	62.64	453.27	206.73	926.23	237.52
1991	25.03	40.59	1982.33	572.61	20.03	42.31	545.31	166.68	20.03	63.24	464.99	212.44	951.72	240.47

App. Table VIIA-36 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

21C LENGTH OF THE LINK (KM) 23.20= 9.40* 1.0+ 5.00* 1.2+ 2.60* 1.3+ 2.30* 1.4+ 0.80* 1.5

	CAR			TRUCK			BUS			TOTAL COST		
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME			
1980	35.00	36.76	258.10	30.00	38.75	79.20	71.21	30.00	59.09	60.54	83.00	366.20
1981	34.00	36.52	295.83	29.00	39.01	104.24	94.36	29.00	59.38	69.34	95.60	457.97
1982	33.00	39.09	333.55	28.00	39.29	129.28	117.83	28.00	59.69	78.24	108.36	528.67
1983	32.00	35.26	371.28	27.00	39.57	154.32	141.66	27.00	60.02	87.09	121.27	601.11
1984	31.00	39.44	409.00	26.00	39.86	179.36	165.86	26.00	60.36	95.94	134.35	674.43
1985	30.00	39.62	446.73	25.00	40.16	204.40	190.46	25.00	60.72	104.79	147.61	748.68
1986	29.20	39.77	493.68	24.20	40.49	201.48	189.21	24.20	61.08	115.80	164.09	805.77
1987	23.40	39.92	540.63	23.40	40.81	198.56	187.97	23.40	61.46	126.81	180.81	869.46
1988	27.60	40.07	587.57	22.60	41.14	195.64	186.74	22.60	61.85	137.83	197.77	920.78
1989	26.80	40.23	634.52	21.80	41.49	192.72	185.52	21.80	62.26	148.84	214.99	992.75
1990	26.00	40.39	681.47	21.00	41.85	189.80	184.30	21.00	62.69	159.85	232.50	1035.40
1991	26.00	40.39	698.92	21.00	41.85	197.83	192.10	21.00	62.69	163.94	236.45	1069.50

VII-36

21C WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 23.30= 9.40* 1.0+ 5.00* 1.2+ 2.60* 1.3+ 1.30* 1.4+ 1.80* 1.5

	CAR			TRUCK			BUS			TOTAL COST		
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME			
1980	35.90	37.84	258.10	34.90	37.66	79.20	102.81	34.90	57.96	60.54	120.95	553.46
1981	38.94	38.01	295.83	33.54	37.85	104.24	135.48	33.94	58.15	69.39	136.54	651.12
1982	37.98	38.19	333.55	32.98	38.05	129.28	168.26	32.98	58.35	78.24	156.14	745.73
1983	37.02	38.37	371.28	32.02	38.27	154.32	201.19	32.02	58.57	87.05	173.78	846.32
1984	36.06	38.55	409.00	31.06	38.49	179.36	234.28	31.06	58.81	95.94	191.45	943.93
1985	35.10	38.74	446.73	30.10	38.73	204.40	267.55	30.10	59.06	104.75	209.19	1041.62
1986	34.14	38.90	493.68	29.14	38.98	201.48	263.75	29.14	59.34	115.80	230.79	1117.07
1987	33.18	39.06	540.63	28.18	39.24	198.56	259.91	28.18	59.64	126.81	252.30	1152.04
1988	32.22	39.22	587.57	27.22	39.50	195.64	256.11	27.22	59.95	137.83	273.78	1256.72
1989	31.26	39.39	634.52	26.26	39.78	192.72	252.34	26.26	60.27	148.84	295.25	1341.14
1990	30.30	39.56	681.47	25.30	40.07	189.80	248.62	25.30	60.61	159.85	316.72	1415.30
1991	29.34	39.74	698.92	24.34	40.42	197.83	259.63	24.34	61.02	163.94	324.76	1496.36

App. Table VIIIA-37 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 123 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 7.10= 7.10* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	34.00	38.92	273.77	75.65	29.00	39.01	81.76	22.65	29.00	59.38	64.22	27.06	125.38
1981	33.40	39.02	306.17	84.82	28.40	39.18	91.18	25.36	28.40	59.57	71.82	30.37	140.56
1982	32.80	39.12	338.58	94.05	27.80	39.34	100.59	28.10	27.80	59.76	79.42	33.70	155.84
1983	32.20	39.23	370.98	103.32	27.20	39.51	110.01	30.86	27.20	59.95	87.02	37.04	171.22
1984	31.60	39.33	403.38	112.64	26.60	39.68	119.43	33.65	26.60	60.15	94.62	40.51	186.71
1985	31.00	39.44	435.79	122.02	26.00	39.86	128.84	36.46	26.00	60.36	102.22	43.81	202.29
1986	30.40	39.58	475.70	133.69	25.20	40.10	141.77	40.36	25.20	60.65	111.58	48.05	222.10
1987	29.40	39.73	515.61	145.45	24.40	40.40	154.69	44.37	24.40	60.99	120.55	52.37	242.19
1988	28.60	39.88	555.53	157.30	23.60	40.72	167.61	48.46	23.60	61.36	130.31	56.77	262.53
1989	27.80	40.03	595.44	169.25	22.80	41.06	180.53	52.63	22.80	61.75	139.67	61.23	283.11
1990	27.00	40.19	635.35	181.30	22.00	41.40	193.45	56.87	22.00	62.16	149.03	65.77	303.94
1991	27.00	40.19	651.61	185.94	22.00	41.40	201.48	59.23	22.00	62.16	152.85	67.45	312.65

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123 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 7.10= 7.10* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	35.50	37.91	273.77	106.47	34.50	37.74	81.76	32.35	34.50	58.03	64.22	39.08	177.91	52.53
1981	38.39	38.11	306.17	118.79	33.39	37.97	91.18	30.14	33.39	58.26	71.82	43.69	198.61	58.05
1982	37.28	38.32	338.58	131.05	32.28	38.21	100.59	39.94	32.28	58.51	79.42	48.29	219.29	63.45
1983	36.17	38.53	370.98	143.26	31.17	38.47	110.01	43.78	31.17	58.78	87.02	52.92	235.95	62.73
1984	35.06	38.74	403.38	155.42	30.06	38.74	119.43	47.64	30.06	59.07	94.62	57.56	263.62	73.91
1985	33.95	38.93	435.79	167.36	28.55	39.03	128.84	51.39	28.55	59.40	102.22	62.06	290.81	73.52
1986	32.84	39.12	475.70	182.10	27.64	39.33	141.77	56.55	27.64	59.74	111.58	67.61	306.26	84.16
1987	31.73	39.31	515.61	196.76	26.73	39.65	154.69	61.71	26.73	60.11	120.55	73.16	331.62	89.44
1988	30.62	39.51	555.53	211.32	25.62	39.97	167.61	66.89	25.62	60.50	130.31	78.70	356.92	94.59
1989	29.51	39.71	595.44	226.30	24.51	40.36	180.53	72.16	24.51	60.94	139.67	84.31	382.77	99.62
1990	28.40	39.92	635.35	241.95	23.40	40.81	193.45	77.57	23.40	61.40	149.03	90.00	409.51	105.57
1991	27.29	40.13	651.61	248.65	22.29	41.28	201.48	81.07	22.29	62.01	152.85	92.38	422.10	109.48

App. Table VIIA-38 REMARKS: CAR = Sedan SPEED = km/h UNIT : Operating cost Rp/km
 127 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 13.90 = 13.90 * 1.0 + 0.0 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1980	53.50	36.54	996.64	506.15	48.50	36.28	311.71	157.19	48.50	57.24	233.78	115.99	845.33
1981	52.87	36.58	1036.84	527.13	47.87	36.31	309.37	156.16	47.67	57.23	243.21	113.46	876.75
1982	52.24	36.61	1077.05	548.16	47.24	36.35	307.04	155.14	47.24	57.22	252.84	110.94	907.23
1983	51.61	36.66	1117.26	569.25	46.61	36.39	304.70	154.12	46.61	57.21	262.07	108.41	937.71
1984	50.98	36.70	1157.47	590.40	45.98	36.43	302.37	153.11	45.98	57.21	271.50	105.90	968.19
1985	50.35	36.74	1197.68	611.62	45.35	36.47	300.03	152.10	45.35	57.21	280.94	103.39	998.67
1986	49.72	36.79	1243.62	635.91	44.72	36.52	302.80	153.70	44.72	57.21	291.71	101.99	1029.15
1987	49.09	36.84	1289.57	660.36	44.09	36.57	305.58	155.32	44.09	57.23	302.45	100.63	1059.62
1988	48.46	36.90	1335.51	684.90	43.46	36.62	308.35	156.96	43.46	57.25	313.27	99.29	1090.10
1989	47.83	36.95	1381.45	709.54	42.83	36.68	311.13	158.61	42.83	57.27	324.04	97.97	1120.58
1990	47.20	37.01	1427.40	734.27	42.20	36.73	313.90	160.27	42.20	57.30	334.82	96.66	1151.06
1991	46.57	37.07	1464.35	754.46	41.57	36.79	322.25	164.81	41.57	57.32	343.45	95.35	1181.54

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127 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 13.90 = 13.90 * 1.0 + 0.0 * 1.2 + 0.0 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1980	39.10	37.58	986.64	758.18	34.10	37.82	311.71	241.62	34.10	58.11	233.78	278.46	1273.26	428.93
1981	38.07	38.17	1036.84	787.03	33.07	38.03	309.37	240.17	33.07	58.33	243.21	289.57	1316.77	440.02
1982	37.04	38.36	1077.05	815.76	32.04	38.26	307.04	238.79	32.04	58.57	252.84	300.74	1355.29	451.05
1983	36.01	38.56	1117.26	844.39	31.01	38.50	304.70	237.45	31.01	58.82	262.07	312.00	1393.85	462.02
1984	34.98	38.76	1157.47	872.91	29.98	38.76	302.37	236.17	29.98	59.10	271.50	323.34	1432.42	473.00
1985	33.95	38.93	1197.68	900.49	28.95	39.03	300.03	234.30	28.95	59.40	280.94	333.50	1468.69	481.58
1986	32.92	39.10	1243.62	932.24	27.92	39.31	302.80	236.46	27.92	59.72	291.71	348.09	1514.79	493.19
1987	31.89	39.28	1289.57	963.83	26.89	39.60	305.58	238.66	26.89	60.06	302.45	358.29	1560.77	504.45
1988	30.86	39.46	1335.51	995.27	25.86	39.90	308.35	240.90	25.86	60.41	313.27	370.53	1608.70	515.54
1989	29.83	39.65	1381.45	1027.33	24.83	40.23	311.13	243.27	24.83	60.79	324.04	382.50	1653.50	527.35
1990	28.80	39.84	1427.40	1063.39	23.80	40.64	313.90	246.13	23.80	61.27	334.82	395.76	1705.26	544.09
1991	27.77	40.04	1464.35	1092.98	22.77	41.07	322.25	253.48	22.77	61.76	343.45	408.28	1752.74	559.77

App. Table VIIA-39 WITH BETTERMENT REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km

126 LENGTH OF THE LINK (KM) 18.74 = 15.30 * 1.0 + 2.00 * 1.2 + 0.80 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5
 VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1580	53.90	36.51	928.93	635.63	48.90	36.26	330.32	224.44	48.90	57.24	217.90	233.75	1093.32
1581	53.30	36.55	965.95	661.60	48.30	36.29	328.06	223.10	48.30	57.23	226.58	243.02	1127.73
1582	52.70	36.59	1002.96	687.65	47.70	36.32	325.80	221.78	47.70	57.22	235.26	252.29	1161.72
1583	52.10	36.62	1039.98	713.76	47.10	36.36	323.54	220.45	47.10	57.22	243.95	261.57	1195.76
1584	51.50	36.66	1076.99	739.95	46.50	36.40	321.27	219.13	46.50	57.21	252.63	270.85	1229.93
1585	50.90	36.70	1114.01	766.21	45.90	36.43	319.01	217.81	45.90	57.21	261.31	280.14	1264.17
1586	50.30	36.74	1156.17	796.08	45.30	36.47	322.22	220.24	45.30	57.21	271.20	290.74	1307.07
1587	49.70	36.79	1198.33	826.14	44.70	36.52	325.43	222.71	44.70	57.21	281.05	301.39	1350.23
1588	49.10	36.84	1240.49	856.40	44.10	36.57	328.65	225.21	44.10	57.23	290.98	312.07	1393.68
1589	48.50	36.89	1282.65	886.75	43.50	36.62	331.86	227.72	43.50	57.25	300.87	322.76	1437.25
1590	47.90	36.94	1324.81	917.22	42.90	36.67	335.07	230.25	42.90	57.27	310.76	333.51	1480.99
1591	47.30	37.00	1359.10	942.34	42.30	36.72	343.83	236.61	42.30	57.29	318.80	342.25	1521.24

128 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 19.00 = 15.30 * 1.0 + 2.00 * 1.2 + 1.00 * 1.3 + 0.0 * 1.4 + 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1580	53.90	36.51	928.93	991.80	48.90	36.26	330.32	361.58	48.90	57.24	217.90	376.59	1729.97	636.15
1581	53.30	36.55	965.95	1028.31	48.30	36.29	328.06	358.07	48.30	57.23	226.58	390.04	1776.42	648.69
1582	52.70	36.59	1002.96	1064.61	47.70	36.32	325.80	354.59	47.70	57.22	235.26	403.38	1822.58	660.87
1583	52.10	36.62	1039.98	1100.69	47.10	36.36	323.54	351.13	47.10	57.22	243.95	416.62	1868.45	672.67
1584	51.50	36.66	1076.99	1136.57	46.50	36.40	321.27	347.70	46.50	57.21	252.63	429.76	1914.03	684.10
1585	50.90	36.70	1114.01	1172.25	45.90	36.43	319.01	344.28	45.90	57.21	261.31	442.80	1959.33	695.17
1586	50.30	36.74	1156.17	1213.12	45.30	36.47	322.22	346.79	45.30	57.21	271.20	457.79	2017.68	710.61
1587	49.70	36.79	1198.33	1254.90	44.70	36.52	325.43	349.58	44.70	57.21	281.05	473.07	2077.55	727.32
1588	49.10	36.84	1240.45	1297.73	44.10	36.57	328.65	352.68	44.10	57.23	290.98	488.72	2139.13	745.45
1589	48.50	36.89	1282.65	1340.49	43.50	36.62	331.86	355.79	43.50	57.25	300.87	504.31	2200.59	763.35
1590	47.90	36.94	1324.81	1383.20	42.90	36.67	335.07	358.50	42.90	57.27	310.76	519.86	2261.96	780.97
1591	47.30	37.00	1359.10	1417.65	42.30	36.72	343.83	367.95	42.30	57.29	318.80	532.28	2317.88	796.64

App. Table VIIA-40 REMARKS: CAR = Sedan UNIT : Operating cost Rp/km
 148 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)

LENGTH OF THE LINK (KM) 55.90= 41.00* 1.0+ 2.00* 1.2+ 1.00* 1.3+ 8.00* 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST
1580	34.00	38.92	147.23	320.33	29.00	39.01	22.63	49.35	29.00	59.38	34.54	114.65	484.23
1981	33.20	39.05	165.92	362.22	28.20	39.23	33.87	74.28	26.20	59.63	38.92	129.73	566.24
1982	32.40	39.19	184.00	404.43	27.40	39.45	45.11	99.50	27.40	59.89	43.30	144.94	648.89
1983	31.60	39.33	203.29	446.55	26.60	39.68	56.36	125.01	26.60	60.15	47.69	160.35	732.51
1984	30.80	39.47	221.97	489.80	25.80	39.92	67.60	150.84	25.80	60.43	52.07	175.89	816.53
1985	30.00	39.62	240.66	532.98	25.00	40.16	78.84	177.00	25.00	60.72	56.45	191.91	901.60
1986	29.00	39.80	270.64	602.19	24.00	40.56	90.55	205.40	24.00	61.17	63.48	217.08	1024.67
1987	28.00	40.00	300.62	672.10	23.00	40.97	102.35	234.41	23.00	61.65	70.52	243.01	1145.53
1988	27.00	40.19	330.60	742.75	22.00	41.40	114.10	264.68	22.00	62.16	77.55	269.44	1276.27
1989	26.00	40.39	360.57	814.15	21.00	41.85	125.85	294.45	21.00	62.69	84.56	286.41	1405.01
1990	25.00	40.60	390.55	886.33	20.00	42.32	137.60	325.56	20.00	63.26	91.61	323.95	1535.85
1991	25.00	40.60	405.93	921.22	20.00	42.32	142.71	337.65	20.00	63.26	95.22	336.71	1555.59

148 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 55.90= 41.00* 1.0+ 2.00* 1.2+ 1.00* 1.3+ 8.00* 1.4+ 0.0 * 1.5

	CAR SPEED	CAR UNIT	CAR VOLUME	CAR COST	TRUCK SPEED	TRUCK UNIT	TRUCK VOLUME	TRUCK COST	BUS SPEED	BUS UNIT	BUS VOLUME	BUS COST	TOTAL COST	SAVING
1580	40.00	37.82	147.23	451.32	35.00	37.64	22.63	70.46	35.00	57.94	34.54	165.54	637.35	203.60
1981	39.61	37.89	165.92	508.17	34.61	37.71	33.87	105.52	34.61	58.01	38.92	186.49	800.18	233.95
1982	39.22	37.96	184.60	564.92	34.22	37.79	45.11	140.61	34.22	58.09	43.30	207.44	912.97	264.05
1983	38.83	38.03	203.29	621.58	33.83	37.87	56.36	175.74	33.83	56.17	47.69	228.39	1025.71	293.45
1984	38.44	38.10	221.97	678.14	33.44	37.96	67.60	210.92	33.44	58.25	52.07	249.34	1136.40	321.87
1985	38.05	38.17	240.66	734.61	33.05	38.04	78.84	246.15	33.05	58.34	56.45	270.25	1251.05	349.45
1986	37.66	38.25	270.64	825.43	32.66	38.12	90.55	283.03	32.66	58.42	63.48	303.93	1412.39	387.72
1987	37.27	38.32	300.62	916.11	32.27	38.21	102.35	319.96	32.27	58.51	70.52	337.58	1573.65	424.12
1988	36.88	38.39	330.60	1006.64	31.88	38.30	114.10	356.96	31.88	58.61	77.55	371.23	1734.84	458.57
1989	36.49	38.47	360.57	1097.03	31.49	38.35	125.85	394.03	31.49	58.70	84.56	404.91	1895.96	490.90
1990	36.10	38.54	390.55	1187.27	31.10	38.48	137.60	431.17	31.10	58.80	91.61	439.60	2057.04	521.19
1991	35.71	38.62	405.93	1233.00	30.71	38.58	142.71	447.56	30.71	58.90	95.22	455.91	2136.48	540.89

App. Table VIIA-41 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 150 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 31.30= 31.30* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR		TRUCK		BUS		TOTAL						
	SPEED	UNIT	SPEED	UNIT	SPEED	UNIT	SPEED	UNIT					
1580	50.00	36.76	107.91	124.17	45.00	36.49	217.17	248.07	45.00	57.21	25.31	45.32	417.57
1981	50.00	36.76	141.32	162.62	45.00	36.49	219.07	250.24	45.00	57.21	53.15	59.36	472.21
1582	50.00	36.76	174.73	201.06	45.00	36.45	220.97	252.41	45.00	57.21	40.55	73.39	526.85
1583	50.00	36.76	208.14	239.50	45.00	36.49	222.87	254.57	45.00	57.21	48.82	87.42	561.45
1584	50.00	36.76	241.55	277.94	45.00	36.49	224.77	256.74	45.00	57.21	56.66	101.45	636.14
1985	50.00	36.76	274.95	316.39	45.00	36.49	226.66	258.91	45.00	57.21	64.50	115.43	650.78
1586	49.00	36.85	304.99	351.76	44.00	36.58	233.53	267.34	44.00	57.23	71.54	128.16	747.26
1587	48.00	36.94	335.03	387.32	43.00	36.66	240.39	275.84	43.00	57.27	78.55	140.86	804.02
1588	47.00	37.03	365.07	423.09	42.00	36.75	247.25	284.40	42.00	57.30	85.63	153.60	861.09
1989	46.00	37.12	395.11	459.05	41.00	36.84	254.11	293.03	41.00	57.35	92.68	166.36	918.45
1990	45.00	37.22	425.14	495.24	40.00	36.94	260.97	301.74	40.00	57.40	99.73	179.17	976.15
1991	45.00	37.22	441.70	514.53	40.00	36.94	270.46	312.71	40.00	57.40	103.61	186.15	1013.39

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150 WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 31.30= 31.30* 1.0+ 0.0 * 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR		TRUCK		BUS		TOTAL						
	SPEED	UNIT	SPEED	UNIT	SPEED	UNIT	SPEED	UNIT					
1580	60.00	36.23	107.91	195.81	55.00	36.56	217.17	410.11	55.00	57.54	25.31	75.22	681.14
1981	60.00	36.23	141.32	256.43	55.00	36.56	219.07	413.69	55.00	57.54	35.15	98.51	768.64
1582	60.00	36.23	174.73	317.05	55.00	36.56	220.97	417.28	55.00	57.54	40.59	121.80	856.13
1983	60.00	36.23	208.14	377.67	55.00	36.56	222.87	420.86	55.00	57.54	48.82	145.05	943.62
1584	60.00	36.23	241.55	438.29	55.00	36.56	224.77	424.44	55.00	57.54	56.66	168.38	1031.12
1985	60.00	36.23	274.95	498.91	55.00	36.56	226.66	428.03	55.00	57.54	64.50	191.67	1118.61
1586	60.00	36.23	304.99	553.42	55.00	36.56	233.53	440.59	55.00	57.54	71.54	212.61	1207.01
1987	60.00	36.23	335.03	607.92	55.00	36.56	240.39	453.94	55.00	57.54	78.55	233.55	1295.42
1588	60.00	36.23	365.07	662.43	55.00	36.56	247.25	463.90	55.00	57.54	85.63	254.49	1393.82
1989	60.00	36.23	395.11	716.94	55.00	36.56	254.11	479.86	55.00	57.54	92.68	275.43	1472.22
1990	60.00	36.23	425.14	771.44	55.00	36.56	260.97	492.82	55.00	57.54	99.73	296.36	1560.52
1991	60.00	36.23	441.70	801.48	55.00	36.56	270.46	510.74	55.00	57.54	103.61	307.91	1620.13

App. Table VIIA-42 REMARKS: CAR = Sedan SPEED : km/h UNIT : Operating cost Rp/km
 WITH BETTERMENT VOLUME : 1000 Vehicles/year COST = VOLUME x UNIT x LENGTH (Million Rp)
 LENGTH OF THE LINK (KM) 34.40= 33.20* 1.0+ 1.00* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

	CAR			TRUCK			BUS			TOTAL COST		
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME			
1980	45.00	37.22	580.66	40.00	36.94	95.63	121.52	40.00	57.40	136.20	268.95	1133.35
1981	44.40	37.28	631.27	39.40	37.02	98.84	125.86	39.40	57.46	138.08	292.67	1228.19
1982	43.80	37.35	681.89	38.80	37.10	102.05	130.23	38.80	57.51	139.95	316.45	1322.89
1983	43.20	37.42	732.50	38.20	37.18	105.27	134.62	38.20	57.57	141.82	340.30	1417.92
1984	42.60	37.49	783.12	37.60	37.26	108.48	139.04	37.60	57.64	145.65	364.21	1513.33
1985	42.00	37.57	833.73	37.00	37.34	111.69	143.48	37.00	57.70	149.57	388.18	1605.11
1986	41.60	37.62	906.82	36.60	37.40	120.01	154.40	36.60	57.75	152.71	422.54	1750.37
1987	41.20	37.67	979.90	36.20	37.46	123.33	165.37	36.20	57.75	159.85	456.56	1842.00
1988	40.80	37.72	1052.99	35.80	37.52	126.66	176.37	35.80	57.84	167.00	491.44	2033.99
1989	40.40	37.77	1126.07	35.40	37.58	130.98	187.40	35.40	57.89	174.14	525.99	2175.37
1990	40.00	37.82	1199.16	35.00	37.64	135.30	198.48	35.00	57.94	181.28	560.61	2315.13
1991	40.00	37.82	1245.87	35.00	37.64	138.77	205.57	35.00	57.94	184.24	582.45	2408.52

	CAR			TRUCK			BUS			TOTAL COST	SAVING		
	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME	SPEED	UNIT	VOLUME				
1980	60.00	36.23	580.66	55.00	36.56	95.63	198.47	55.00	57.54	136.20	444.86	1801.31	667.46
1981	59.51	36.25	631.27	54.51	36.53	98.84	204.32	54.51	57.51	148.08	481.95	1841.97	713.79
1982	59.02	36.27	681.89	54.02	36.49	102.05	210.11	54.02	57.48	159.95	518.78	2061.63	756.95
1983	58.53	36.29	732.50	53.53	36.45	105.27	215.86	53.53	57.46	171.82	555.34	2220.88	802.95
1984	58.04	36.31	783.12	53.04	36.42	108.48	221.55	53.04	57.43	183.69	591.05	2359.13	845.83
1985	57.55	36.33	833.73	52.55	36.38	111.69	227.20	52.55	57.40	195.57	627.70	2494.59	887.47
1986	57.06	36.35	906.82	52.06	36.34	120.01	243.16	52.06	57.37	212.71	680.35	2704.00	957.23
1987	56.57	36.38	979.90	51.57	36.31	123.33	258.98	51.57	57.35	229.85	732.63	2911.41	1019.41
1988	56.08	36.40	1052.99	51.08	36.27	126.66	274.68	51.08	57.32	247.00	784.04	3117.02	1083.03
1989	55.59	36.42	1126.07	50.59	36.24	130.98	290.24	50.59	57.30	264.14	836.05	3321.45	1145.08
1990	55.10	36.44	1199.16	50.10	36.21	135.30	305.68	50.10	57.27	281.28	887.27	3524.89	1205.57
1991	54.61	36.47	1245.87	49.61	36.22	138.77	315.74	49.61	57.26	292.24	918.78	3651.24	1242.42

WITHOUT BETTERMENT

LENGTH OF THE LINK (KM) 34.40= 33.20* 1.0+ 1.00* 1.2+ 0.0 * 1.3+ 0.0 * 1.4+ 0.0 * 1.5

App. Table VIIB-1

ALL ROUTES TOTAL
COST-BENEFIT ANALYSIS (PART II)

1978 COEFFICIENT OF COST 1.00
COEFFICIENT OF BENEFIT 1.00 1.00 1.00
1975 VALUE (MILLION \$)

YEAR	COSTS		SAVINGS		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT	
	CAPIT-AL	OPERAT-ING	MAINTEN-ANCE	VEHICLE-OPERAT-ING	TOTAL	15 PERCENT	20 PERCENT	15 PERCENT	20 PERCENT	25 PERCENT
1978	478.65	3214.98	0.0	0.0	378.65	2795.63	22.07	478.66	21.15	473.65
1979	5944.98	6344.98	697.89	22.52	555.72	5251.47	427.24	4822.93	392.37	2571.98
1980	0.0	0.0	3345.86	95.29	3497.93	5564.89	2299.92	4897.86	2024.25	4333.31
1981	0.0	0.0	5999.71	198.82	7139.53	0.0	4115.78	0.0	3471.51	0.0
1982	0.0	0.0	7315.27	223.24	7538.52	0.0	3747.97	0.0	3029.56	0.0
1983	0.0	0.0	7548.18	1382.77	9222.25	0.0	3933.56	0.0	3021.53	0.0
1984	0.0	0.0	7995.78	1255.81	9252.58	0.0	3482.14	0.0	2595.01	0.0
1985	0.0	0.0	8413.14	722.51	9132.65	0.0	2985.48	0.0	2123.96	0.0
1986	0.0	0.0	9817.18	151.74	9968.23	0.0	2549.33	0.0	1738.13	0.0
1987	0.0	0.0	9245.87	168.24	9455.37	0.0	2337.15	0.0	1527.34	0.0
1988	0.0	0.0	9302.41	149.25	9449.66	0.0	2138.61	0.0	1339.13	0.0
1989	0.0	0.0	9517.59	124.14	9645.83	0.0	1822.87	0.0	1081.84	0.0
1990	0.0	0.0	5298.71	74.86	5373.57	0.0	873.35	0.0	502.23	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	13191.02	1334926.69	4591.79	126.64	58935.13	1316793.58	330682.46	12878.57	2857.66	11829.74

PRESENT WORTH 16591.98
BENEFIT/COST 2.18
INTERVAL RATE OF RETURN = 36.33 PERCENT

9979.09 5634.50
1.77 1.48

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00
 1975 VALJE (MILLION RP)

YEAR	COSTS				BENEFITS				DISCOUNTED AT 25 PERCENT					
	CAPIT-AL COSTS	OPERAT-ING COSTS	VEHICLE MAINTENANCE COSTS	SAVINGS	TOTAL COSTS	EMPLOYMENT	SAVINGS	TOTAL BENEFITS	15 PERCENT COSTS	20 PERCENT COSTS	25 PERCENT COSTS	15 PERCENT BENEFITS	20 PERCENT BENEFITS	25 PERCENT BENEFITS
1978	228.02	226.82	0.00	0.00	0.00	0.00	0.00	0.00	228.02	0.00	228.02	0.00	228.02	0.00
1979	191.47	191.07	0.00	0.00	17.32	17.32	1661.53	15.06	1592.39	14.43	1528.70	13.86	1458.38	13.29
1980	3985.19	3935.19	50.00	0.00	35.32	272.85	3013.38	205.32	2767.49	199.49	2550.52	174.63	2326.55	159.98
1981	3796.44	3706.44	90.00	0.00	53.32	281.03	2335.96	1572.74	1791.92	1384.23	1585.38	1224.68	1068.98	875.38
1982	0.00	0.00	0.00	85.26	0.00	4238.21	0.00	2451.81	0.00	2058.00	0.00	1756.95	0.00	0.00
1983	0.00	0.00	0.00	109.68	0.00	4450.51	0.00	2212.74	0.00	1788.60	0.00	1458.38	0.00	0.00
1984	0.00	0.00	0.00	571.75	0.00	5050.63	0.00	2187.75	0.00	1694.72	0.00	1326.55	0.00	0.00
1985	0.00	0.00	0.00	423.27	0.00	5097.29	0.00	1915.26	0.00	1422.56	0.00	1068.98	0.00	0.00
1986	0.00	0.00	0.00	144.09	0.00	5217.71	0.00	1705.68	0.00	1213.67	0.00	975.38	0.00	0.00
1987	0.00	0.00	0.00	65.86	0.00	5133.71	0.00	1459.32	0.00	994.95	0.00	689.03	0.00	0.00
1988	0.00	0.00	0.00	83.08	0.00	5473.29	0.00	1336.84	0.00	873.47	0.00	580.71	0.00	0.00
1989	0.00	0.00	0.00	64.07	0.00	5691.29	0.00	1223.30	0.00	765.98	0.00	488.88	0.00	0.00
1990	0.00	0.00	0.00	59.90	0.00	5739.34	0.00	1032.07	0.00	649.31	0.00	397.84	0.00	0.00
1991	0.00	0.00	0.00	22.65	0.00	2739.18	0.00	445.03	0.00	255.92	0.00	150.53	0.00	0.00
TOTAL	9220.52	9220.52	524359.27	1985.14	90.3351557.15	5933.9317814.97	6379.8213315.10	5892.6112215.88	6935.28	4313.27	2.09	1.73		

PRESENT WORTH 10475.92

BENEFIT/COST 2.57

INTERNAL RATE OF RETURN = 42.98 PERCENT

App. Table VIIB-3

LINK 212 BUNTU - BANYUMAS

COST BENEFIT ANALYSIS (PAGE 2)

1978	COEFFICIENT OF COST	1.00			
	COEFFICIENT OF BENEFIT	1.00	1.00	1.00	
1975 VALUE (MILLION RP)					

ROUTE NO	BUNTU - PRINGSURAT
LINK NO	212 BUNTU - BANYUMAS

YEAR	TOTAL COSTS		SAVINGS		NET COSTS		DISCOUNTED AT 25 PERCENT		DISCOUNTED AT 21 PERCENT		DISCOUNTED AT 15 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS DISCOUNTED AT 25 PERCENT
	CAPITAL COSTS	OPERATING COSTS	MAINTENANCE COSTS	VEHICLE SAVINGS	EMPLOYMENT SAVINGS	REVENUES	TOTAL	NET	NET	NET	NET	NET	
1978	16.78	16.78	0.0	0.0	0.0	0.0	15.78	0.0	15.78	0.0	15.78	0.0	0.0
1979	553.67	553.67	0.0	0.0	0.0	6.03	547.64	5.24	542.40	5.02	537.38	4.82	0.0
1980	0.0	0.0	4.17	233.37	0.0	237.54	0.0	179.61	0.0	164.96	0.0	152.03	30.59
1981	0.0	0.0	4.17	229.55	0.0	233.73	0.0	153.68	0.0	135.26	0.0	119.67	30.20
1982	0.0	0.0	4.17	225.45	0.0	229.62	0.0	131.29	0.0	110.73	0.0	96.05	29.67
1983	0.0	0.0	4.17	221.33	0.0	225.50	0.0	112.11	0.0	90.52	0.0	73.89	29.14
1984	0.0	0.0	4.17	217.41	0.0	221.58	0.0	115.89	0.0	89.76	0.0	73.26	36.53
1985	0.0	0.0	4.17	214.43	0.0	218.60	0.0	82.18	0.0	51.31	0.0	45.84	28.25
1986	0.0	0.0	4.17	211.99	0.0	216.16	0.0	73.66	0.0	50.27	0.0	36.27	27.93
1987	0.0	0.0	4.17	209.55	0.0	213.72	0.0	50.75	0.0	41.42	0.0	28.68	27.62
1988	0.0	0.0	4.17	207.14	0.0	211.31	0.0	52.23	0.0	36.13	0.0	22.59	27.30
1989	0.0	0.0	4.17	204.73	0.0	208.90	0.0	44.92	0.0	28.13	0.0	17.95	27.01
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	570.45	570.45	89.15	2269.24	535.19	1009.56	551.57	811.32	539.72	565.16			

PRESENT WORTH		423.38	249.81	126.45
BENEFIT/COST		1.72	1.44	1.23
INTERNAL RATE OF RETURN = 32.29 PERCENT				

App. Table VIIB-4 LINK 214 BANYUMAS - KLAMPOK

COST-BENEFIT ANALYSIS (TABLE I)

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1975 VALUE (MILLION RP)

ROJTE NO 10NTJ - PRINGSURAT

LINK NO 214 BANYUMAS - KLAMPOK

YEAR	CAPIT- AL COST- NSTRUC- TION COSTS	COSTS TOTAL	VEHICLE OPERAT- ING COSTS	MAINT- NANCE COSTS	EMPLOY- MENT SAVINGS	BENEFIT- TS TOTAL	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT COSTS	DISCOUNTED AT 25 PERCENT COSTS	FIRST YEAR BEN- EFIT AS PERCENT OF COSTS		
1978	41.77	41.77	0.0	0.0	0.0	0.0	41.77	0.0	41.77	0.0		
1979	1219.56	1219.56	0.0	0.0	11.18	11.18	1016.38	9.72	975.73	8.94		
1980	413.24	413.24	0.0	0.0	0.78	0.78	312.32	0.59	254.35	0.0		
1981	0.0	0.0	232.79	14.91	0.0	247.70	0.0	162.87	0.0	126.82		
1982	0.0	0.0	246.38	14.91	0.0	261.29	0.0	149.39	0.0	107.02		
1983	0.0	0.0	259.95	14.91	0.0	274.87	0.0	135.66	0.0	90.07		
1984	0.0	0.0	273.54	197.51	0.0	471.05	0.0	233.65	0.0	123.68		
1985	0.0	0.0	287.11	94.32	0.0	381.43	0.0	146.15	0.0	80.41		
1986	0.0	0.0	301.93	5.07	0.0	307.00	0.0	130.36	0.0	51.51		
1987	0.0	0.0	316.73	5.07	0.0	321.80	0.0	91.48	0.0	43.19		
1988	0.0	0.0	331.54	5.07	0.0	336.61	0.0	83.23	0.0	35.14		
1989	0.0	0.0	346.35	5.07	0.0	351.42	0.0	75.54	0.0	30.19		
1990	0.0	0.0	361.15	5.07	0.0	366.22	0.0	68.45	0.0	25.17		
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL	1576.47	1576.47	2957.48	393.91	11.96	3333.35	1414.56	1226.05	1344.99	933.94	1231.84	723.65

PRESENT WORTH -198.62

-414.05

-558.40

BENEFIT/COST 3.97

3.69

3.56

INTERNAL RATE OF RETURN = 11.18 PERCENT

App. Table VIIB-5 LINK 108 KLAMPOK - BANJARNEGARA

COST-BENEFIT ANALYSIS (PAGES 2)

1978	COEFFICIENT OF COST	1.00			
	COEFFICIENT OF BENEFIT	1.00	1.00	1.00	1.00

ROUTE NO BUNTO - BRINGSUPAT 1975 VALUE (MILLION RP)

LINK NO 108 KLAMPOK - BANJARNEGARA

YEAR	CAPITAL COSTS		OPERATING COSTS		SAVINGS		NET BENEFIT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS DISCOUNTED AT 15 PERCENT	
	CAPITAL COSTS	VEHICLE MAINTENANCE	OPERATING COSTS	SAVINGS	TOTAL COSTS	TOTAL SAVINGS	NET BENEFIT	DISCOUNTED AT 20 PERCENT	DISCOUNTED AT 25 PERCENT	BENEFITS AS PERCENT OF COSTS	BENEFITS AS PERCENT OF COSTS	BENEFITS AS PERCENT OF COSTS	BENEFITS AS PERCENT OF COSTS	
1978	64.32	0.0	1172.92	11.72	1286.64	11.72	1274.92	46.02	36.37	46.52	36.37	46.52	36.37	
1979	0.0	0.0	1117.23	11.72	1128.95	11.72	1116.23	0.0	0.0	0.0	0.0	0.0	0.0	
1980	1755.83	0.0	132.35	11.72	144.07	11.72	132.35	13.52	11.96	1123.73	11.96	1123.73	11.96	
1981	0.0	0.0	1161.51	11.72	1173.23	11.72	1161.51	686.49	634.21	0.0	534.56	50.05	50.05	
1982	0.0	0.0	1215.77	11.72	1227.49	11.72	1215.77	512.13	453.70	0.0	369.93	54.12	54.12	
1983	0.0	0.0	1307.44	11.72	1319.16	11.72	1307.44	419.03	399.58	0.0	312.77	57.19	57.19	
1984	0.0	0.0	1377.18	11.72	1388.90	11.72	1377.18	374.84	380.19	0.0	285.59	65.30	65.30	
1985	0.0	0.0	1437.88	11.72	1449.60	11.72	1437.88	343.19	297.40	0.0	214.54	61.30	61.30	
1986	0.0	0.0	1495.60	11.72	1507.32	11.72	1495.60	311.47	255.56	0.0	176.98	63.21	63.21	
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	291.63	195.03	0.0	124.47	55.55	55.55	
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	169.00	0.0	133.55	72.23	72.23	
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	1799.95	1799.85	269.29	17.22	1371.95	1371.68	638.05	1263.35	3513.92	1157.75	2726.87			

PRESENT WORTH	3266.38	2250.57	1559.12
BENEFIT/COST	3.38	2.78	2.34

INTERNAL RATE OF RETURN = 59.50 PERCENT

App. Table VIIB-6 LINK 107 BANJARNEGARA - SELOKROMO
 COST-BENEFIT ANALYSIS (PLAN X)

1978	COEFFICIENT OF COST		COEFFICIENT OF BENEFIT		1975 VALUE (MILLION RP)			
	1.00	1.00	1.00	1.00				
ROJTE NO	RUNTJ - PRINGSURAT							
LINK NO	107 BANJARNEGARA - SELOKROMO							
YEAR	CAPIT- AL COSTS	VEHICLE OPERATING COSTS	MAINTENANCE COSTS	EMPLOYMENT SAVINGS	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT COSTS	DISCOUNTED AT 25 PERCENT COSTS	FIRST YEAR BEN- EFITS AS PERCENT OF COSTS
1978	27.44	27.44	0.0	0.0	27.44	27.46	27.45	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	1097.49	1097.49	0.0	9.93	715.74	629.33	556.79	4.57
1982	0.0	515.35	0.0	0.0	298.52	0.0	251.79	213.86
1983	0.0	528.76	0.0	5.75	265.90	0.0	214.93	175.25
1984	0.0	546.27	0.0	37.57	252.39	0.0	195.51	153.24
1985	0.0	567.46	0.0	5.74	216.61	0.0	160.81	120.84
1986	0.0	596.23	0.0	74.31	220.59	0.0	156.93	113.21
1987	0.0	626.42	0.0	5.74	179.98	0.0	122.71	84.98
1988	0.0	654.70	0.0	5.74	163.57	0.0	106.83	71.32
1989	0.0	712.98	0.0	5.74	152.55	0.0	95.52	60.96
1990	0.0	751.03	0.0	5.74	141.83	0.0	84.99	52.37
1991	0.0	777.71	0.0	5.74	126.36	0.0	72.56	42.74
TOTAL	1114.95	1114.95	0.0	8.93	2023.90	556.79	1457.85	1392.54
					PRESENT WORTH	1281.60	911.05	508.29
					BENEFIT/COST	2.73	2.23	1.87
					INTERNAL RATE OF RETURN	= 46.94 PERCENT		

App. Table VIIIB-7 LINK 110 SELOKROMO - WONOSOBO
 COST BENEFIT ANALYSIS (1978-83)

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1.00
 1975 VALUE (MILLION RP)

RJJE NO 30113 - SPRINGSURAT
 LINK NO 110 SELOKROMO - WONOSOBO

YEAR	COSTS		SAVINGS		DISCOUNTED AT DISCOUNTED AT DISCOUNTED AT DISCOUNTED AT				FIRST YEAR BENEFITS AS PERCENT OF COSTS
	OPERATING COSTS	MAINTENANCE COSTS	OPERATING SAVINGS	MAINTENANCE SAVINGS	15 PERCENT COSTS	20 PERCENT COSTS	25 PERCENT COSTS	30 PERCENT COSTS	
1978	13.63	0.0	0.0	0.0	13.63	0.0	13.63	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	537.83	0.0	0.0	0.0	4.53	353.63	2.98	311.24	2.62
1982	0.0	0.0	379.57	4.95	334.35	0.0	219.75	0.0	185.35
1983	0.0	0.0	395.85	4.95	421.82	0.0	199.77	0.0	161.47
1984	0.0	0.0	415.65	25.82	442.47	0.0	191.29	0.0	148.18
1985	0.0	0.0	434.26	4.92	439.18	0.0	165.10	0.0	122.57
1986	0.0	0.0	455.85	59.24	515.09	0.0	169.38	0.0	113.79
1987	0.0	0.0	479.17	4.92	484.29	0.0	137.61	0.0	93.82
1988	0.0	0.0	514.29	4.92	519.23	0.0	129.34	0.0	83.85
1989	0.0	0.0	550.75	4.92	555.58	0.0	119.44	0.0	74.79
1990	0.0	0.0	588.65	4.92	593.57	0.0	110.94	0.0	66.57
1991	0.0	0.0	574.28	4.92	629.22	0.0	98.98	0.0	56.92
TOTAL	551.66	551.65	4819.95	125.48	4.33	4949.95	367.26	1542.58	324.87

PRESENT WORTH 1175.32 791.07 539.65
 BENEFIT/COST 4.23 3.44 2.87

INTERNAL RATE OF RETURN = 67.85 PERCENT

App. Table VIIB-8 LINK 109 WONOSOBO - KERTEK

COST-BENEFIT ANALYSIS

YEAR	CAPITAL COSTS	OPERATING COSTS	SAVINGS	NET BENEFIT	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT COSTS	DISCOUNTED AT 25 PERCENT COSTS	FIRST YEAR BENEFITS AS PERCENT OF COSTS
1978	11.00	0.0	0.0	0.0	11.00	0.0	11.00	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	435.16	0.0	0.0	3.70	329.04	2.80	279.50	2.37
1981	0.0	197.31	5.78	0.0	203.09	0.0	117.53	103.98
1982	0.0	204.79	5.78	0.0	210.57	0.0	131.55	86.25
1983	0.0	211.91	5.78	0.0	217.69	0.0	87.48	71.33
1984	0.0	221.94	12.11	0.0	234.05	0.0	79.38	61.35
1985	0.0	233.37	45.72	0.0	278.39	0.0	77.69	58.38
1986	0.0	246.58	5.78	0.0	252.36	0.0	58.59	42.34
1987	0.0	261.93	5.78	0.0	267.71	0.0	51.88	35.93
1988	0.0	279.86	5.78	0.0	285.64	0.0	46.13	33.67
1989	0.0	305.31	5.78	0.0	312.09	0.0	42.00	26.81
1990	0.0	336.50	5.78	0.0	340.28	0.0	38.16	23.38
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	446.16	2498.50	173.37	3.70	2505.57	340.04	930.68	289.50
				PRESENT WORTH	590.64	388.89	253.30	
				BENEFIT/COST	2.74	2.24	1.87	

INTERVAL RATE OF RETURN = 47.25 PERCENT

1975 VALJE (MILLION RP)

LINK NO 109 WONOSOBO - KERTEK

COEFFICIENT OF COST 1.00 COEFFICIENT OF BENEFIT 1.00

COEFFICIENT OF BENEFIT 1.00

COEFFICIENT OF BENEFIT 1.00

COEFFICIENT OF BENEFIT 1.00

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COEFFICIENT OF BENEFIT 1.00

COEFFICIENT OF BENEFIT 1.00

COEFFICIENT OF BENEFIT 1.00

App. Table VIIB-9 LINK 203 KERTEK - PARAKAN
 COST BENEFIT ANALYSIS - (1978-81)

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00

ROUTE NO BUNTJ - PRINGSURAT
 LINK NO 203 KERTEK - PARAKAN

1975 VALJE (MILLION RP)

YEAR	CAPITAL COSTS		VEHICLE MAINTENANCE		EMPLOYMENT		BENEFITS		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 25 PERCENT		DISCOUNTED AT 35 PERCENT	
	TOTAL	SAVINGS	OPERATING	SAVINGS	MAINTENANCE	SAVINGS	TOTAL	SAVINGS	NET BENEFITS	NET COSTS	NET BENEFITS	NET COSTS	NET BENEFITS	NET COSTS
1979	36.32	36.32	0.0	0.0	0.0	0.0	35.32	35.32	0.0	0.0	35.32	35.32	0.0	0.0
1979	37.54	37.54	0.0	0.0	0.0	0.0	32.64	32.64	0.10	31.28	0.09	30.03	0.09	0.0
1980	1381.29	1381.29	0.0	0.0	13.62	13.62	1344.33	1344.33	13.30	959.09	9.46	883.93	9.72	0.0
1981	0.0	0.0	618.33	16.74	0.0	0.0	635.17	635.17	0.0	417.57	0.0	367.52	0.0	325.16
1982	0.0	0.0	538.23	15.74	0.0	0.0	654.97	654.97	0.0	374.48	0.0	315.86	0.0	258.28
1983	0.0	0.0	563.34	15.74	0.0	0.0	679.08	679.08	0.0	335.63	0.0	272.13	0.0	221.87
1984	0.0	0.0	581.20	57.74	0.0	0.0	738.94	738.94	0.0	316.44	0.0	245.13	0.0	191.37
1985	0.0	0.0	711.52	136.74	0.0	0.0	848.26	848.26	0.0	307.65	0.0	228.39	0.0	171.62
1986	0.0	0.0	736.47	15.20	0.0	0.0	751.67	751.67	0.0	245.72	0.0	174.81	0.0	126.11
1987	0.0	0.0	759.33	15.20	0.0	0.0	774.53	774.53	0.0	227.17	0.0	150.11	0.0	103.96
1988	0.0	0.0	801.12	15.20	0.0	0.0	816.32	816.32	0.0	201.78	0.0	131.84	0.0	87.55
1989	0.0	0.0	843.54	15.20	0.0	0.0	858.74	858.74	0.0	184.58	0.0	115.58	0.0	73.77
1990	0.0	0.0	885.54	15.20	0.0	0.0	900.74	900.74	0.0	168.54	0.0	101.14	0.0	51.97
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1454.65	1454.65	7336.71	283.70	13.73	7636.14	1112.97	2783.96	1226.39	2112.02	943.95	1541.04		

PRESENT WORTH 1670.99 1085.63 691.09

BENEFIT/COST 2.50 2.06 1.73

INTERNAL RATE OF RETURN = 44.41 PERCENT

App. Table VIIB-10 LINK 217 PARAKAN - PERTIGAANBULU

1978		COEFFICIENT OF COST		1.77		COEFFICIENT OF BENEFIT		1.77		1.99		1.99		1975 VALJE (MILLION RP)	
ROUTE	NO	KUNTU	-	PRINGSURAT											
LINK	NO	217	PARAKAN	-	PERTIGAANBULU										
YEAR	COSTS	VEHICLE MAINTENANCE COSTS	OPERATING COSTS	SAVINGS	NET BENEFIT	EMPLOYMENT	TOTAL BENEFITS	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT BENEFITS	DISCOUNTED AT 25 PERCENT COSTS	DISCOUNTED AT 25 PERCENT BENEFITS	FIRST YEAR BENEFITS AS PERCENT OF COSTS			
1978	5.22	5.22	0.0	0.0	0.0	0.0	0.0	5.22	0.0	5.22	0.0	0.0			
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
1981	199.58	199.58	0.0	0.0	0.93	131.23	0.61	115.50	0.54	102.18	0.48	0.0			
1982	0.0	30.28	2.93	0.0	33.01	0.0	19.87	0.0	15.92	0.0	13.52	13.83			
1983	0.0	32.99	2.93	0.0	33.92	0.0	16.86	0.0	13.63	0.0	11.11	14.21			
1984	0.0	31.95	42.50	0.0	74.45	0.0	32.19	0.0	26.93	0.0	19.52	31.23			
1985	0.0	32.92	0.43	0.0	33.33	0.0	12.53	0.0	9.30	0.0	6.99	13.97			
1986	0.0	36.48	4.47	0.0	38.95	0.0	12.73	0.0	9.05	0.0	6.53	15.32			
1987	0.0	36.14	0.43	0.0	36.57	0.0	17.40	0.0	7.09	0.0	4.91	15.32			
1988	0.0	37.40	0.43	0.0	37.83	0.0	9.35	0.0	6.11	0.0	4.76	15.85			
1989	0.0	38.50	0.43	0.0	38.93	0.0	8.37	0.0	5.24	0.0	3.34	16.31			
1990	0.0	40.29	0.43	0.0	40.72	0.0	7.61	0.0	4.57	0.0	2.90	17.76			
1991	0.0	41.61	0.43	0.0	42.04	0.0	6.83	0.0	3.93	0.0	2.31	17.62			
TOTAL	274.30	204.80	55.41	0.93	410.69	135.45	135.36	120.72	100.32	107.40	75.58				
								PRESENT WORTH	-0.09	-20.40	-31.83				
								BENEFIT/COST	1.77	0.83	0.70				
INTERNAL RATE OF RETURN = 14.98 PERCENT															

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APP. Table VIIB-11 LINK 111a PERTIGAANBULU - KEDU - TEMANGGUNG

1978	Coefficient of Cost	1.00	1.00	1.00
	Coefficient of Benefit	1.00	1.00	1.00

1975 VALJE (MILION RP)

ROUTE NO BUNTU - PRINGSURAT

LINK NO 111-A PERTIGAANBULU - TEMANGGUNG

YEAR	CAPITAL COSTS		VEHICLE MAINTENANCE COSTS		EMPLOYMENT		BENEFITS		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 25 PERCENT		DISCOUNTED AT 35 PERCENT	
	CONSTRUCTION	OPERATING	SAVINGS	TOTAL	SAVINGS	TOTAL	PERCENT	TOTAL	PERCENT	TOTAL	PERCENT	TOTAL	PERCENT	TOTAL
1978	11.11	0.00	0.00	11.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1979	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1980	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1981	439.35	39.35	0.00	478.70	4.73	289.69	3.11	254.08	2.74	224.79	2.42	204.00	1.82	158.62
1982	0.00	302.88	4.53	307.41	0.00	175.76	0.00	148.25	0.00	125.91	0.00	103.55	0.00	82.67
1983	0.00	311.47	4.53	316.00	0.00	157.11	0.00	126.99	0.00	103.55	0.00	82.67	0.00	64.21
1984	0.00	320.71	4.53	325.24	0.00	145.59	0.00	112.78	0.00	88.28	0.00	64.21	0.00	45.83
1985	0.00	336.61	4.53	341.14	0.00	129.25	0.00	95.21	0.00	71.54	0.00	51.01	0.00	31.96
1986	0.00	355.44	4.53	360.00	0.00	115.81	0.00	84.62	0.00	62.73	0.00	47.87	0.00	26.23
1987	0.00	375.50	4.53	380.03	0.00	108.03	0.00	73.65	0.00	51.01	0.00	37.15	0.00	21.88
1988	0.00	395.42	4.53	400.00	0.00	98.86	0.00	64.59	0.00	42.94	0.00	28.67	0.00	17.44
1989	0.00	427.96	4.53	432.50	0.00	92.96	0.00	58.21	0.00	37.15	0.00	23.88	0.00	14.58
1990	0.00	460.55	4.53	465.08	0.00	86.93	0.00	52.16	0.00	31.96	0.00	19.88	0.00	11.88
1991	0.00	472.67	4.53	477.20	0.00	77.56	0.00	44.60	0.00	26.23	0.00	15.88	0.00	9.88
TOTAL	450.23	3759.21	112.31	4733.87	239.84	1239.97	265.24	875.80	235.95	550.70	414.75	276.00	168.00	100.00

PRESENT WORTH	910.12	610.57	414.75
BENEFIT/COST	4.04	3.30	2.76

INTERNAL RATE OF RETURN = 65.11 PERCENT

App. Table VIIB-12 LINK 112 TEMANGGUNG - KRANGGAN

1978	COEFFICIENT OF COST	1.00	1.00	1.00
	COEFFICIENT OF BENEFIT	1.00	1.00	1.00
1975 VALJE (MILLION RP)				

ROUTE NO	BUNTIJ - PRINGSURAT
LINK NO	112 TEMANGGUNG - KRANGGAN

YEAR	CAPIT- AL COST	COSTS TOTAL	SEVERITY VEHICLE MAINTENANCE- OPERATING COSTS	EMPLOY- MENT	BENEFIT- TOTAL	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT COSTS	DISCOUNTED AT 25 PERCENT COSTS	FIRST YEAR BEN- EFIT AS PERCENT OF COSTS DISCOUNTED AT
1978	5.97	6.97	1.00	3.00	3.00	5.97	5.97	5.97	3.00
1979	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1980	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1981	277.95	277.95	0.00	2.43	2.43	182.76	160.85	142.31	1.24
1982	0.00	0.00	205.78	8.25	214.03	122.37	103.22	87.57	66.53
1983	0.00	0.00	209.89	8.25	218.14	129.45	87.67	71.48	65.74
1984	0.00	0.00	215.87	0.00	315.59	135.87	106.52	82.99	95.63
1985	0.00	0.00	224.68	3.31	227.99	85.71	53.63	47.81	68.71
1986	0.00	0.00	238.25	35.07	273.32	89.28	53.52	45.52	82.31
1987	0.00	0.00	250.53	3.31	253.84	72.16	49.22	34.07	76.50
1988	0.00	0.00	264.83	3.31	268.14	66.28	43.31	28.79	82.91
1989	0.00	0.00	292.12	3.31	293.43	63.07	39.49	25.21	88.43
1990	0.00	0.00	318.14	3.31	321.45	57.08	36.75	22.79	95.87
1991	0.00	0.00	326.57	3.31	329.88	53.60	30.83	18.13	99.39
TOTAL	284.92	284.92	2544.39	172.14	2432.18	859.47	624.33	449.28	465.30

PRESENT WORTH	569.75	456.51	316.02
BENEFIT/COST	4.53	3.72	3.12

INTERNAL RATE OF RETURN = 73.19 PERCENT

App. Table VIIB-13 LINK 219 KRANGGAN - SECANG

COST-BENEFIT ANALYSIS - (TABLE 13)

1978	COEFFICIENT OF COST	1.00		
	COEFFICIENT OF BENEFIT	1.00	1.00	1.00

1975 VALUE (MILLION RP.)

ROJYE NO 30070 - BRINGSURAT

LINK NO 219 KRANGGAN - SECANG

YEAR	CAPIT- AL CO- NSTRU- CTION COSTS	COSTS	VEHICLE OPERAT- ING COSTS	MAINTE- NANCE COSTS	SAVINGS	SAVINGS	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT COSTS	DISCOUNTED AT 25 PERCENT COSTS	W O R T H	FIRST YEAR BEN- EFITS AS PERCENT OF COSTS
1978	7.84	0.0	0.0	0.0	0.0	7.84	0.0	0.0	7.84	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	378.38	378.88	0.0	3.38	3.38	23.09	2.22	178.75	1.96	158.15	1.73
1982	0.0	0.0	173.88	0.0	175.37	0.0	133.84	0.0	95.05	0.0	72.24
1983	0.0	0.0	181.18	26.91	208.09	0.0	103.46	0.0	83.63	0.0	68.19
1984	0.0	0.0	188.37	3.48	193.85	0.0	82.51	0.0	53.92	0.0	53.73
1985	0.0	0.0	195.43	2.48	197.91	0.0	74.40	0.0	55.23	0.0	41.50
1986	0.0	0.0	205.60	35.27	240.87	0.0	78.74	0.0	56.32	0.0	43.41
1987	0.0	0.0	215.61	2.48	218.09	0.0	61.99	0.0	42.27	0.0	29.27
1988	0.0	0.0	225.47	19.70	245.17	0.0	60.60	0.0	39.67	0.0	26.32
1989	0.0	0.0	235.19	0.59	235.87	0.0	50.70	0.0	31.75	0.0	20.26
1990	0.0	0.0	243.88	3.59	247.47	0.0	45.71	0.0	27.43	0.0	16.81
1991	0.0	0.0	247.52	3.59	249.21	0.0	40.34	0.0	23.20	0.0	13.65
TOTAL	316.72	316.72	91.38	3.39	220.93	210.93	721.52	185.59	510.04	165.99	380.41

PRESENT WORTH 490.59 323.45 214.43

BENEFIT/COST 3.33 2.73 2.29

INTERNAL RATE OF RETURN = 57.57 PERCENT

App. Table VIIB-14 LINK 221 SECANG - PRINGSURAT
 COST BENEFIT ANALYSIS

1978	COEFFICIENT OF COST	1.00	1.00	1.00
	COEFFICIENT OF BENEFIT	1.00	1.00	1.00
1975 VALUE (MILLION RP)				

ROUTE NO	BUNTJ - PRINGSURAT
LINK NO	221 SECANG - PRINGSURAT

YEAR	CAPITAL COSTS	VEHICLE MAINTENANCE COSTS	OPERATING COSTS	SAVINGS	TOTAL BENEFITS	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT BENEFITS	DISCOUNTED AT 25 PERCENT COSTS	DISCOUNTED AT 25 PERCENT BENEFITS	FIRST YEAR BENEFITS AS PERCENT OF COSTS
1978	6.20	0.0	0.0	0.0	0.0	5.20	0.0	5.20	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	245.66	245.66	0.0	0.0	3.36	151.53	2.21	142.16	1.94	125.78
1982	0.0	0.0	207.81	2.03	0.0	209.84	0.0	119.98	0.0	111.20
1983	0.0	0.0	211.73	2.03	0.0	213.76	0.0	106.28	0.0	85.91
1984	0.0	0.0	215.78	2.03	0.0	217.81	0.0	93.95	0.0	72.78
1985	0.0	0.0	218.46	2.03	0.0	220.49	0.0	82.89	0.0	51.53
1986	0.0	0.0	223.39	3.09	0.0	226.48	0.0	82.86	0.0	58.95
1987	0.0	0.0	229.51	2.03	0.0	231.54	0.0	65.82	0.0	44.87
1988	0.0	0.0	236.28	2.03	0.0	238.31	0.0	59.91	0.0	38.49
1989	0.0	0.0	242.82	2.03	0.0	244.85	0.0	52.63	0.0	32.95
1990	0.0	0.0	249.13	2.03	0.0	251.16	0.0	45.94	0.0	28.17
1991	0.0	0.0	252.44	2.03	0.0	254.47	0.0	41.36	0.0	23.78
TOTAL	251.86	251.86	2286.85	43.36	3.36	2338.57	167.73	753.82	148.36	550.58
					PRESENT WORTH	595.09	402.21	280.42	280.42	
					BENEFIT/COST	4.49	3.71	3.12	3.12	

INTERNAL RATE OF RETURN = 75.40 PERCENT

COST-BENEFIT ANALYSIS (1978-87)

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1.00 1975 VALUE (MILLION RP)

YEAR	COSTS		REVENUES		P R E S E N T		M O R T A L	
	CAPITAL	OPERATING	VEHICLE MAINTENANCE	EMPLOYMENT	DISCOUNTED AT 15 PERCENT	DISCOUNTED AT 20 PERCENT	DISCOUNTED AT 25 PERCENT	
	TOTAL	SAVINGS	SAVINGS	NET	TOTAL COSTS	TOTAL BENEFITS	TOTAL COSTS	TOTAL BENEFITS
1978	41.23	0.0	0.0	0.0	41.23	0.0	41.23	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	1546.41	1546.43	0.0	10.88	10.88	1082.55	7.15	952.79
1982	0.0	263.88	17.90	0.0	276.78	0.0	158.25	0.0
1983	0.0	299.75	12.90	0.0	312.65	0.0	155.44	0.0
1984	0.0	335.59	164.70	0.0	500.29	0.0	216.29	0.0
1985	0.0	371.22	12.89	0.0	393.91	0.0	144.33	0.0
1986	0.0	398.69	17.89	0.0	411.59	0.0	134.55	0.0
1987	0.0	425.78	12.89	0.0	438.67	0.0	124.70	0.0
1988	0.0	452.45	12.89	0.0	455.34	0.0	115.02	0.0
1989	0.0	479.29	12.89	0.0	492.18	0.0	105.79	0.0
1990	0.0	506.50	11.81	0.0	519.41	0.0	95.89	0.0
1991	0.0	522.61	11.81	0.0	532.42	0.0	85.53	0.0
TOTAL	1597.65	1507.65	278.57	10.88	4343.11	1123.78	1344.95	994.02

PRESENT WORTH 221.16 -23.88 -165.09
 BENEFIT/COST 1.20 1.98 2.81

INTERNAL RATE OF RETURN = 19.27 PERCENT

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00
 COST BENEFIT ANALYSIS (TABLE 3)

1975 VALUE (MILLION RP)

ROUTE NO SALAMAN - PURWADREJJ

LINK NO 210 SELAMAN - MARON

YEAR	CAPITAL COSTS		OPERATING COSTS		SAVINGS		TOTAL COSTS		DISCOUNTED AT 15 PERCENT COSTS		DISCOUNTED AT 20 PERCENT COSTS		DISCOUNTED AT 25 PERCENT COSTS		FIRST YEAR BENEFITS AS PERCENT OF COSTS	
	CONSTRUCTION	OPERATION & MAINTENANCE	OPERATION & MAINTENANCE	VEHICLE	OPERATION & MAINTENANCE	SAVINGS	TOTAL	15 PERCENT	20 PERCENT	25 PERCENT	15 PERCENT	20 PERCENT	25 PERCENT	15 PERCENT	20 PERCENT	25 PERCENT
1978	28.14	0.0	0.0	0.0	0.0	0.0	0.0	23.14	0.0	28.14	0.0	28.14	0.0	28.14	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	1115.64	1115.64	0.0	0.0	0.0	0.0	0.0	733.55	4.01	645.62	3.53	571.21	3.12	500.00	2.71	0.0
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	122.72	0.0	103.91	0.0	97.92	0.0	87.11	0.0
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	121.62	0.0	98.31	0.0	80.16	0.0	68.36	0.0
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	165.85	0.0	129.25	0.0	101.17	0.0	83.97	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	114.50	0.0	85.00	0.0	63.87	0.0	52.86	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	105.31	0.0	75.53	0.0	54.56	0.0	44.91	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.18	0.0	66.93	0.0	46.35	0.0	38.92	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.27	0.0	66.98	0.0	46.35	0.0	38.92	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.70	0.0	51.78	0.0	33.05	0.0	28.88	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.32	0.0	45.19	0.0	27.59	0.0	23.25	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.20	0.0	38.65	0.0	22.73	0.0	18.04	0.0
TOTAL	1143.78	1143.78	0.0	0.0	0.0	0.0	0.0	3392.85	761.59	1049.68	673.76	599.35	559.84	559.84	559.84	559.84

PRESENT WORTH 287.99
 BENEFIT/COST 1.39
 BENEFIT/COST 1.12
 BENEFIT/COST 0.93
 INTERNAL RATE OF RETURN = 23.25 PERCENT

App. Table VIIB-17 LINK 123 MARON - PURWOREJO
 COST BENEFIT ANALYSIS

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00
 1975 VALJE (MILLION RP)

RJYE NO SALAYAN - PURWOREJO

LINK NO 123 MARON - PURWOREJO

YEAR	COSTS		SAVINGS		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS DISCOUNTED AT 15 PERCENT
	CAPIT-AL	OPERAT-ING	VEHICLE MAINTENANCE	EMPLOYMENT	TOTAL	BENEFITS	COSTS	BENEFITS	COSTS	BENEFITS	
1978	13.39	0.0	0.0	0.0	13.39	0.0	13.09	0.0	13.39	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	538.79	0.0	0.0	0.0	538.79	6.78	349.00	3.14	271.76	2.45	0.0
1982	0.0	0.0	58.71	3.43	62.14	0.0	35.53	0.0	29.97	0.0	25.15
1983	0.0	0.0	68.59	3.43	72.02	0.0	33.82	0.0	27.34	0.0	22.29
1984	0.0	0.0	70.46	3.43	73.89	0.0	49.44	0.0	38.30	0.0	29.98
1985	0.0	0.0	75.92	3.43	79.35	0.0	29.83	0.0	22.15	0.0	16.64
1986	0.0	0.0	82.95	3.43	86.38	0.0	28.24	0.0	20.39	0.0	16.49
1987	0.0	0.0	89.87	3.43	93.30	0.0	26.52	0.0	18.08	0.0	12.52
1988	0.0	0.0	95.70	3.43	99.13	0.0	24.75	0.0	15.17	0.0	10.75
1989	0.0	0.0	103.99	3.43	107.42	0.0	23.09	0.0	14.66	0.0	9.23
1990	0.0	0.0	112.03	3.42	115.45	0.0	21.58	0.0	12.95	0.0	7.93
1991	0.0	0.0	115.51	3.42	118.93	0.0	19.33	0.0	11.12	0.0	6.54
TOTAL	543.88	879.73	78.75	6.78	953.25	352.09	295.27	320.26	213.38	286.85	159.27

PRESENT WORTH -106.88
 BENEFIT/COST 3.67
 -126.58
 3.56

INTERNAL RATE OF RETURN = 10.72 PERCENT

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00
 1975 VALJE (MILLION Rp)

RJJE VS SURAKARTA - WYDGI RI
 LINK NO 127 SURAKARTA - SUKOHARJO

YEAR	CAPIT- AL CO- NSTRU- TION COSTS	COSTS	VEHICLE OPERAT- ING COSTS	MAINTEN- ANCE COSTS	EMPLOY- MENT COSTS	BENEFIT- S	DISCOUNTED AT 15 PERCENT	DISCOUNTED AT 20 PERCENT	DISCOUNTED AT 25 PERCENT	FIRST YEAR BEN- EFITS AS PERCENT OF COSTS		
1978	44.56	44.56	0.0	0.0	44.55	0.0	44.56	0.0	44.56	0.0		
1979	48.99	48.99	0.0	0.16	42.60	0.14	40.82	0.13	39.19	0.13		
1980	292.79	292.79	0.0	0.81	221.39	0.31	203.33	0.28	187.39	0.26		
1981	1373.74	1373.74	0.0	5.79	903.26	3.81	794.99	3.35	703.35	2.96		
1982	0.0	0.0	451.05	13.32	0.0	454.37	0.0	223.94	0.0	193.21		
1983	0.0	0.0	462.26	13.32	0.0	475.38	0.0	191.04	0.0	155.77		
1984	0.0	0.0	473.00	117.70	0.0	590.70	0.0	197.92	0.0	154.55		
1985	0.0	0.0	481.58	172.67	0.0	654.25	0.0	182.59	0.0	137.21		
1986	0.0	0.0	493.19	81.11	0.0	574.30	0.0	187.74	0.0	133.56		
1987	0.0	0.0	504.65	5.35	0.0	509.81	0.0	144.92	0.0	88.80		
1988	0.0	0.0	515.54	5.35	0.0	520.89	0.0	128.76	0.0	84.13		
1989	0.0	0.0	527.39	5.35	0.0	532.74	0.0	114.51	0.0	71.70		
1990	0.0	0.0	544.09	5.35	0.0	549.44	0.0	102.69	0.0	51.62		
1991	0.0	0.0	559.74	5.35	0.0	565.09	0.0	91.84	0.0	52.82		
TOTAL	1760.08	1760.08	5012.19	424.37	5.36	5443.32	1211.81	1777.90	1083.70	1301.80	974.69	976.58

PRESENT WORTH 565.09
 BENEFIT/COST 1.47
 INTERNAL RATE OF RETURN = 25.25 PERCENT

218.10 2.19
 1.20 1.00

1978 COEFFICIENT OF COST 1.00 COST BENEFIT ANALYSIS (1.00)
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1.00

RJTE VC SURAKARTA - WONOGIRI
 LINK NO 128 SUKOHARJO - WONOGIRI

YEAR	COSTS		SAVINGS		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 25 PERCENT		DISCOUNTED AT 35 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS	
	TOTAL	OPERATING	MAINTENANCE	VEHICLE	TOTAL	SAVINGS	TOTAL	SAVINGS	TOTAL	SAVINGS		
1978	46.76	0.0	0.0	0.0	45.75	0.0	45.76	0.0	45.76	0.0	0.0	
1979	51.58	0.0	0.0	0.0	44.85	0.0	42.98	0.0	41.26	0.0	0.0	
1980	301.93	0.0	0.0	0.0	229.33	0.0	209.67	0.0	193.24	0.0	0.0	
1981	1294.41	0.0	0.0	0.0	851.13	0.0	749.08	0.0	662.74	0.0	0.0	
1982	0.0	0.0	0.0	0.0	673.53	0.0	387.95	0.0	327.22	0.0	277.93	
1983	0.0	0.0	0.0	0.0	693.33	0.0	343.22	0.0	277.43	0.0	226.21	
1984	0.0	0.0	0.0	0.0	878.52	0.0	379.81	0.0	294.21	0.0	233.33	
1985	0.0	0.0	0.0	0.0	839.51	0.0	315.60	0.0	234.29	0.0	176.06	
1986	0.0	0.0	0.0	0.0	825.73	0.0	269.70	0.0	191.88	0.0	138.42	
1987	0.0	0.0	0.0	0.0	735.61	0.0	209.11	0.0	142.57	0.0	98.73	
1988	0.0	0.0	0.0	0.0	753.74	0.0	186.31	0.0	121.73	0.0	83.83	
1989	0.0	0.0	0.0	0.0	771.62	0.0	165.85	0.0	103.85	0.0	66.28	
1990	0.0	0.0	0.0	0.0	789.25	0.0	147.52	0.0	88.52	0.0	54.24	
1991	0.0	0.0	0.0	0.0	804.81	0.0	130.80	0.0	75.22	0.0	44.24	
TOTAL	1694.68	1594.59	7237.01	523.95	5.45	7772.43	1171.01	2539.54	1348.50	1850.17	944.00	1396.23

PRESENT WORTH 1368.53 BENEFIT/COST 1.77 452.24 1.49

INTERNAL RATE OF RETURN = 36.41 PERCENT

1975 VALUE (MILLION RP)

App. Table VIIB-21 TOTAL OF ROUTE IV PONOROGO - BLITAR

COST-BENEFIT ANALYSIS

1978	COEFFICIENT OF COST	1.00	1.00	1.00
	COEFFICIENT OF BENEFIT	1.00	1.00	1.00
1975 VALUE (MILLION RP)				

YEAR	TOTAL COSTS		OPERATING COSTS		SAVINGS		VEHICLE MAINTENANCE		EMPLOYMENT		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 25 PERCENT	
	OPERATING	SAVINGS	OPERATING	SAVINGS	OPERATING	SAVINGS	OPERATING	SAVINGS	OPERATING	SAVINGS	OPERATING	SAVINGS	OPERATING	SAVINGS
1978	118.09	0.0	118.09	0.0	0.0	0.0	118.09	0.0	118.09	0.0	118.09	0.0	118.09	0.0
1979	123.54	0.0	123.54	0.0	7.75	7.75	131.29	7.75	1002.95	6.46	952.83	6.20	952.83	6.20
1980	2365.08	264.62	2100.46	264.62	19.35	19.35	2289.81	19.35	1783.34	220.21	1642.42	212.24	1513.65	186.39
1981	1352.49	1335.52	1.97	1.97	7.01	7.01	1345.50	7.01	592.33	713.08	599.08	627.60	538.87	555.26
1982	0.0	1620.97	1620.97	0.0	0.0	1620.97	0.0	0.0	952.28	0.0	718.97	0.0	513.57	0.0
1983	0.0	1539.87	1539.87	0.0	0.0	1539.87	0.0	0.0	800.23	0.0	645.84	0.0	527.42	0.0
1984	0.0	1657.85	1657.85	0.0	0.0	1657.85	0.0	0.0	861.34	0.0	657.23	0.0	522.28	0.0
1985	0.0	1774.92	1774.92	0.0	0.0	1774.92	0.0	0.0	860.00	0.0	638.43	0.0	479.75	0.0
1986	0.0	1936.24	1936.24	0.0	0.0	1936.24	0.0	0.0	687.81	0.0	489.33	0.0	353.30	0.0
1987	0.0	2391.78	2391.78	0.0	0.0	2391.78	0.0	0.0	611.29	0.0	416.77	0.0	288.63	0.0
1988	0.0	2248.16	2248.16	0.0	0.0	2248.16	0.0	0.0	570.21	0.0	372.56	0.0	247.59	0.0
1989	0.0	2403.19	2403.19	0.0	0.0	2403.19	0.0	0.0	529.16	0.0	331.33	0.0	211.47	0.0
1990	0.0	1956.59	1956.59	0.0	0.0	1956.59	0.0	0.0	373.71	0.0	224.24	0.0	137.40	0.0
1991	0.0	706.22	706.22	0.0	0.0	706.22	0.0	0.0	119.15	0.0	58.52	0.0	40.30	0.0
TOTAL	6739.20	20190.33.8	1462.38	23.022513.21	3545.01	7235.18	3772.53	5410.43	3133.45	6156.34	2037.89	1032.90	1.33	1.33

PRESENT WORTH	3560.17	2037.89	1032.90
BENEFIT/COST	1.93	1.60	1.33
INTERNAL RATE OF RETURN = 33.16 PERCENT			

App. Table VIIB-22 LINK 148 PONOROGO - TRENGGALEK
 COST BENEFIT ANALYSIS

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00

ROUTE NO PONOROGO - BLITAR
 LINK NO 148 PONOROGO - TRENGGALEK

YEAR	COSTS		VEHICLE MAINTENANCE		EMPLOYMENT		BENEFITS		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS
	TOTAL	OPERATING	SAVINGS	TOTAL	SAVINGS	TOTAL	SAVINGS	TOTAL	SAVINGS	TOTAL	SAVINGS	TOTAL	SAVINGS	TOTAL	
1978	47.74	47.74	0.0	0.0	0.0	0.0	47.74	0.0	47.74	0.0	47.74	0.0	47.74	0.0	0.0
1979	40.06	40.06	0.0	0.0	0.14	0.14	34.83	0.12	33.38	0.12	32.05	0.11	30.81	0.10	0.0
1980	794.76	794.76	0.0	0.0	5.43	5.43	600.95	4.11	551.92	3.77	508.65	3.48	468.38	3.23	0.0
1981	152.49	152.49	0.0	0.0	7.01	7.01	692.03	4.61	609.08	4.06	538.87	3.59	478.50	3.31	0.0
1982	0.0	0.0	303.09	27.71	0.0	330.80	0.0	189.14	0.0	159.53	0.0	135.59	0.0	135.59	13.75
1983	0.0	0.0	340.48	27.71	0.0	368.19	0.0	183.06	0.0	147.97	0.0	120.65	0.0	120.65	15.30
1984	0.0	0.0	377.82	42.98	0.0	420.80	0.0	181.92	0.0	140.92	0.0	110.31	0.0	110.31	17.49
1985	0.0	0.0	415.12	127.81	0.0	542.93	0.0	204.11	0.0	151.52	0.0	113.86	0.0	113.86	22.57
1986	0.0	0.0	468.39	139.51	0.0	607.90	0.0	198.39	0.0	141.14	0.0	101.52	0.0	101.52	25.23
1987	0.0	0.0	521.58	27.15	0.0	548.73	0.0	155.98	0.0	106.35	0.0	73.65	0.0	73.65	22.81
1988	0.0	0.0	574.70	27.15	0.0	601.85	0.0	149.77	0.0	97.20	0.0	54.52	0.0	54.52	25.32
1989	0.0	0.0	627.75	27.15	0.0	654.90	0.0	140.77	0.0	88.14	0.0	56.26	0.0	56.26	27.22
1990	0.0	0.0	680.75	27.15	0.0	707.90	0.0	132.31	0.0	79.40	0.0	48.55	0.0	48.55	29.42
1991	0.0	0.0	706.32	25.76	0.0	732.08	0.0	119.15	0.0	58.52	0.0	40.30	0.0	40.30	30.47
TOTAL	1935.05	1935.05	500.07	12.58	5528.55	1375.56	1662.43	1242.12	1138.63	1127.31	872.78				

PRESENT WORTH 285.87
 BENEFIT/COST 1.21
 -53.49
 -254.52
 0.77

INTERNAL RATE OF RETURN = 19.32 PERCENT

App. Table VIIB-23 LINK 150 TRENGGALEK - TULUNGAGUNG

COST BENEFIT ANALYSIS

PAGE 41

1978	COEFFICIENT OF COST	1.00	1.00	1.00
	COEFFICIENT OF BENEFIT	1.00	1.00	1.00
				1975 VALUE (MILLION RP)

ROUTE NO PONDORJO - BLITAF

LINK NO 150 TRENGGALEK - TULUNGAGUNG

YEAR	CAPITAL COSTS		OPERATING COSTS		SAVINGS		TOTAL COSTS		TOTAL BENEFITS		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS
	VEHICLE	MAINTENANCE	OPERATING	SAVINGS	VEHICLE	MAINTENANCE	OPERATING	SAVINGS	VEHICLE	MAINTENANCE	OPERATING	SAVINGS	VEHICLE	MAINTENANCE	OPERATING	SAVINGS	
1978	24.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.40	0.00	0.00	0.00	24.40	0.00	0.00	0.00	0.00
1979	955.22	355.22	0.00	0.00	6.95	5.95	930.63	6.04	796.02	5.79	764.18	5.56	0.00	0.00	0.00	0.00	0.00
1980	0.00	0.00	264.52	19.35	0.00	232.97	0.00	213.97	0.00	196.51	0.00	191.10	25.32	0.00	0.00	0.00	0.00
1981	0.00	0.00	297.94	19.35	0.00	316.29	0.00	207.97	0.00	183.04	0.00	161.34	27.97	0.00	0.00	0.00	0.00
1982	0.00	0.00	331.26	19.35	0.00	349.61	0.00	199.89	0.00	158.60	0.00	143.20	33.92	0.00	0.00	0.00	0.00
1983	0.00	0.00	364.58	19.35	0.00	382.93	0.00	190.38	0.00	153.89	0.00	125.48	33.86	0.00	0.00	0.00	0.00
1984	0.00	0.00	397.90	19.35	0.00	417.25	0.00	181.03	0.00	148.74	0.00	111.83	33.86	0.00	0.00	0.00	0.00
1985	0.00	0.00	431.22	15.86	0.00	447.08	0.00	168.07	0.00	124.77	0.00	93.76	39.54	0.00	0.00	0.00	0.00
1986	0.00	0.00	465.51	15.86	0.00	481.37	0.00	157.21	0.00	111.83	0.00	80.58	42.53	0.00	0.00	0.00	0.00
1987	0.00	0.00	499.82	15.86	0.00	514.66	0.00	146.30	0.00	99.74	0.00	69.08	45.51	0.00	0.00	0.00	0.00
1988	0.00	0.00	532.59	15.86	0.00	548.45	0.00	135.57	0.00	88.58	0.00	58.89	49.50	0.00	0.00	0.00	0.00
1989	0.00	0.00	565.39	15.86	0.00	582.25	0.00	125.15	0.00	78.36	0.00	50.01	51.49	0.00	0.00	0.00	0.00
1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1991	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	979.62	379.62	4150.21	371.90	6.95	4529.15	355.03	1817.32	820.42	1417.78	789.58	1131.46					

PRESENT WORTH 962.30 597.37 342.89

BENEFIT/COST 2.13 1.73 1.43

INTERNAL RATE OF RETURN = 35.42 PERCENT

App. Table VII-B-24 LINK 152 TULUNGAGUNG - BLITAR

1978 COEFFICIENT OF COST 1.00
 COST BENEFIT ANALYSIS
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00
 1975 VALUE (MILLION RP)

ROUTE NO 0000000 - BLITAR

LINK NO 152 TULUNGAGUNG - BLITAR

YEAR	CAPITAL COSTS		VEHICLE MAINTENANCE		EMPLOYMENT		BENEFITS		DISCOUNTED AT 25 PERCENT		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 10 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS
	OPERATING COSTS	SAVINGS	OPERATING COSTS	SAVINGS	TOTAL	NET	25 PERCENT	15 PERCENT	10 PERCENT	25 PERCENT	15 PERCENT	10 PERCENT	25 PERCENT	15 PERCENT	
1978	45.95	0.0	0.0	0.0	0.0	0.0	45.95	0.0	45.95	0.0	45.95	0.0	45.95	0.0	0.0
1979	28.26	0.0	0.0	0.0	0.66	0.66	181.10	0.57	173.55	0.55	165.61	0.53	158.67	0.51	0.0
1980	1570.32	0.0	0.0	0.0	2.93	2.93	1187.39	2.14	1090.57	1.97	1005.00	1.81	925.00	1.66	0.0
1981	0.0	0.0	737.58	23.62	0.0	751.20	0.0	500.50	0.0	440.51	0.0	389.73	35.39	0.0	
1982	0.0	0.0	785.52	23.62	0.0	811.24	0.0	663.26	0.0	590.74	0.0	531.87	37.66	0.0	
1983	0.0	0.0	834.81	23.62	0.0	858.43	0.0	626.79	0.0	544.98	0.0	481.29	39.91	0.0	
1984	0.0	0.0	882.13	23.62	0.0	905.75	0.0	690.41	0.0	611.63	0.0	545.23	44.37	0.0	
1985	0.0	0.0	929.58	23.62	0.0	953.20	0.0	767.82	0.0	688.22	0.0	622.13	60.32	0.0	
1986	0.0	0.0	1000.64	23.62	0.0	1024.26	0.0	832.22	0.0	796.35	0.0	735.50	72.24	0.0	
1987	0.0	0.0	1071.42	23.62	0.0	1095.04	0.0	909.00	0.0	870.68	0.0	815.90	85.76	0.0	
1988	0.0	0.0	1142.87	23.62	0.0	1166.49	0.0	985.87	0.0	955.78	0.0	905.20	99.20	0.0	
1989	0.0	0.0	1209.25	23.62	0.0	1232.87	0.0	1062.24	0.0	1032.24	0.0	985.20	105.20	0.0	
1990	0.0	0.0	1275.83	23.62	0.0	1301.45	0.0	1148.38	0.0	1118.38	0.0	1065.75	111.75	0.0	
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	1824.53	0.0	9867.57	597.41	3.69	14651.47	1414.43	3725.44	1310.00	2804.02	1217.56	2162.10	0.0	0.0	

PRESENT WORTH 2311.00 1694.02 944.54
 BENEFIT/COST 2.63 2.14 1.78
 INTERNAL RATE OF RETURN = 43.78 PERCENT

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00
 1975 VALUE (MILLION RP)

YEAR	COSTS		REVENUES		P.P.E.S.E.N.T		W.O.R.T.H	
	CAPITAL COSTS	OPERATING COSTS	VEHICLE MAINTENANCE	EMPLOYMENT	DISCOUNTED AT 15 PERCENT	DISCOUNTED AT 20 PERCENT	DISCOUNTED AT 25 PERCENT	TOTAL BENEFITS
1978	467.59	467.69	0.0	0.0	0.0	467.69	0.0	467.69
1979	2694.28	2694.28	0.0	22.52	2242.85	19.58	2255.42	18.02
1980	5901.14	5901.14	455.93	22.64	526.90	4362.11	398.41	4098.01
1981	694.07	694.07	2991.55	96.35	40.31	3177.21	4545.18	2056.19
1982	0.0	0.0	6325.65	199.72	0.0	3730.90	0.0	3146.88
1983	0.0	0.0	6523.55	199.81	0.0	3391.92	0.0	2741.75
1984	0.0	0.0	6932.42	1397.83	0.0	3601.40	0.0	2789.78
1985	1363.52	1363.52	7279.43	1262.17	1.29	8542.92	512.60	3211.60
1986	1377.11	1377.11	7776.10	688.05	1.28	8465.43	450.16	2767.36
1987	0.0	0.0	8251.73	152.79	0.0	9474.52	0.0	2389.09
1988	0.0	0.0	8788.07	144.45	0.0	8932.51	0.0	2207.98
1989	0.0	0.0	9388.18	159.90	0.0	9548.08	0.0	2052.29
1990	0.0	0.0	9237.63	122.37	0.0	9359.99	0.0	1749.45
1991	0.0	0.0	4903.95	72.98	0.0	4980.92	0.0	809.54
TOTAL	18765.80	18765.80	27962.19	4515.05	112.73	38358.81	112802.59	28365.68

PRESENT WORTH 15595.09
 BENEFIT/COST 2.22
 INTERNAL RATE OF RETURN = 37.96 PERCENT

9567.92 5612.93
 1.83 1.54

1979 COEFFICIENT OF COST 1.00
 COEFFICIENT DE BENEFICI 1.00

TOTAL DE POUTE RINTI - PRINGSURAT

YEAR	COSTS		VEHICLE MAINTENANCE		EMPLOYMENT		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT	
	CONSTRUCTION COSTS	OPERATING COSTS	SAVINGS	OPERATING COSTS	SAVINGS	SAVINGS	TOTAL COSTS	TOTAL BENEFITS	TOTAL COSTS	TOTAL BENEFITS	TOTAL COSTS	TOTAL BENEFITS
1978	222.19	722.19	0.0	0.0	0.0	0.0	272.19	0.0	222.19	0.0	222.19	0.0
1979	1541.89	1541.80	0.0	17.32	17.32	1340.77	15.06	1284.91	14.43	1233.51	13.86	13.86
1980	3385.91	3385.81	193.36	4.29	193.32	236.97	256.16	179.18	235.26	164.56	2166.92	151.66
1981	2697.95	2680.95	1982.34	53.39	2057.69	1762.77	1352.96	1551.47	1190.79	1372.65	1053.54	1053.54
1982	0.0	0.0	3577.91	86.64	0.0	3664.55	0.0	2095.22	0.0	1767.24	0.0	1501.00
1983	0.0	0.0	3716.41	86.21	0.0	3802.62	0.0	1890.57	0.0	1528.19	0.0	1244.04
1984	0.0	0.0	3869.27	57.96	0.0	4457.22	0.0	1926.98	0.0	1492.71	0.0	1169.43
1985	760.08	760.08	4066.51	421.49	0.72	4488.71	285.74	1687.47	212.12	1252.72	159.40	941.35
1986	486.63	486.63	4378.14	312.07	0.44	4690.65	159.08	1533.38	113.17	1090.90	81.64	786.96
1987	0.0	0.0	4673.01	70.56	0.0	4743.57	0.0	1348.42	0.0	919.34	0.0	636.67
1988	0.0	0.0	5032.40	52.73	0.0	5085.13	0.0	1259.44	0.0	822.89	0.0	547.08
1989	0.0	0.0	5459.61	65.05	0.0	5524.66	0.0	1187.49	0.0	743.55	0.0	474.56
1990	0.0	0.0	5720.34	57.74	0.0	5778.10	0.0	1079.97	0.0	648.05	0.0	397.07
1991	0.0	0.0	2532.31	21.98	0.0	2554.29	0.0	415.14	0.0	238.73	0.0	140.47

TOTAL 9077.54 9077.54 5199.60 1831.13 307647111.47 6239.70 15971.27 5725.12 11874.09 5236.30 9058.63

PRESENT WORTH 9440.57 6138.96 3822.33

BENEFIT/COST 2.52 2.07 1.73

INTERNAL RATE OF RETURN = 43.35 PERCENT

App. Table VIIB-27 LINK 212 BUNTI - YANYUMAS
 COST BENEFIT ANALYSIS - (PAGE 33)

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1975 VALUE (MILLION Rp)

ROUTE NO	POINT	LINK NO	212 BUNTI - YANYUMAS	D I S C O U N T					W O R T H	FIRST YEAR REV- ELTS AS PERCENT OF COSTS	
			B E N E F I T S		D I S C O U N T E D A T		D I S C O U N T E D A T		B E N E F I T S		
YEAR	CAPIT- AL CO- NSTRU- CTION	COSTS TOTAL	VEHICLE OPAT- ING COSTS	MAINT- NANCE COSTS	EMPLOY- MENT	BENEFIT- TOTAL	15 PERCENT COSTS	20 PERCENT COSTS	25 PERCENT COSTS	15 PERCENT BENEFITS	25 PERCENT BENEFITS
1978	18.09	18.09	0.0	0.0	0.0	0.0	13.09	0.0	18.09	0.0	0.0
1979	529.11	529.11	0.0	0.0	6.03	6.03	547.05	5.24	524.26	5.02	503.29
1980	0.0	0.0	123.36	4.29	0.0	197.65	0.0	149.45	0.0	137.26	0.0
1981	0.0	0.0	121.91	4.26	0.0	195.17	0.0	128.33	0.0	112.95	0.0
1982	0.0	0.0	188.45	4.24	0.0	192.69	0.0	110.17	0.0	92.93	0.0
1983	0.0	0.0	155.98	4.22	0.0	130.20	0.0	94.54	0.0	76.44	0.0
1984	0.0	0.0	133.69	50.64	0.0	234.33	0.0	101.31	0.0	79.48	0.0
1985	74.82	74.82	182.24	3.17	0.0	186.48	20.17	70.10	20.88	52.04	15.69
1986	0.0	0.0	182.17	4.14	0.0	186.31	0.0	60.91	0.0	43.33	0.0
1987	0.0	0.0	132.04	3.12	0.0	136.16	0.0	52.92	0.0	36.08	0.0
1988	0.0	0.0	181.85	4.09	0.0	185.94	0.0	45.94	0.0	30.03	0.0
1989	0.0	0.0	181.60	3.07	0.0	184.67	0.0	39.91	0.0	24.99	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	722.02	722.02	1852.29	38.24	6.10	1946.63	593.27	858.84	543.22	689.54	537.07

PRESENT WORTH 265.59 126.31 28.12
 BENEFIT/COST 1.41 1.22 1.05
 INTERNAL RATE OF RETURN = 26.52 PERCENT

App. Table VII B-28 LINK 214 BANYUMAS - KLAMPOK

COST BENEFIT ANALYSIS

1974	COEFFICIENT OF COST	1.00
	COEFFICIENT OF BENEFIT	1.00
	1975 VALUE (MILLION Rp)	

ROUTE NO RUMTU - PRINGSUPAT

LINK NO 214 BANYUMAS - KLAMPOK

YEAR	COSTS		REVENUES		DISCOUNTED AT 20 PERCENT			DISCOUNTED AT 25 PERCENT			FIRST YEAR BENEFITS AS PERCENT OF COSTS DISCOUNTED AT 15 PERCENT
	CAPITAL COSTS	OPERATING COSTS	VEHICLE MAINTENANCE	EMPLOYMENT SAVINGS	TOTAL COSTS	TOTAL BENEFITS	NET COSTS	TOTAL COSTS	TOTAL BENEFITS	NET COSTS	
1978	26.81	0.0	0.0	0.0	26.81	0.0	36.81	0.0	36.81	0.0	0.0
1979	874.78	0.0	11.12	11.18	760.68	9.72	728.98	9.32	699.82	8.94	0.0
1980	413.04	0.0	0.78	312.32	0.78	286.83	0.54	264.35	0.50	0.0	0.0
1981	0.0	169.24	0.0	14.79	0.0	121.00	0.0	106.50	0.0	94.22	10.38
1982	0.0	178.18	0.0	14.74	0.0	110.30	0.0	93.04	0.0	79.02	10.88
1983	0.0	197.01	0.0	14.68	0.0	100.29	0.0	81.05	0.0	65.09	11.38
1984	0.0	195.72	0.0	197.33	0.0	169.93	0.0	131.63	0.0	103.04	22.18
1985	147.77	202.35	0.14	300.48	55.33	112.96	41.24	83.86	30.99	63.02	16.95
1986	0.0	212.99	0.0	4.68	0.0	71.16	0.0	50.62	0.0	36.52	12.28
1987	0.0	221.27	0.0	4.62	0.0	64.21	0.0	43.78	0.0	30.32	12.75
1988	0.0	229.04	0.0	4.57	0.0	57.74	0.0	37.73	0.0	25.08	13.18
1989	0.0	235.55	0.0	4.51	0.0	51.81	0.0	32.44	0.0	20.71	13.60
1990	0.0	243.79	0.0	4.45	0.0	46.40	0.0	27.84	0.0	17.06	14.01
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1472.60	2075.15	362.26	12210.245061	1165.36	916.11	1093.87	698.36	1031.97	544.52	

PRESENT WORTH = -249.25

BENEFIT/COST = 0.64

INTERNAL RATE OF RETURN = 10.08 PERCENT

DISCOUNTED AT 20 PERCENT BENEFITS 1031.97

DISCOUNTED AT 25 PERCENT BENEFITS 544.52

DISCOUNTED AT 15 PERCENT BENEFITS 17.06

DISCOUNTED AT 10 PERCENT BENEFITS 14.01

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1975 VALUE (MILLION RP)

ROUTE NO BINTU - PRINGSURAT
 LINK NO 108 KLAMPOK - BANJARNEGARA

YEAR	CAPITAL COSTS		OPERATING COSTS		SAVINGS		TOTAL COSTS		TOTAL BENEFITS		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS	
	CAPITAL COSTS	OPERATING COSTS	SAVINGS	TOTAL COSTS	TOTAL BENEFITS	DISCOUNTED AT 15 PERCENT	DISCOUNTED AT 20 PERCENT	DISCOUNTED AT 25 PERCENT	TOTAL BENEFITS	DISCOUNTED AT 15 PERCENT	DISCOUNTED AT 20 PERCENT	DISCOUNTED AT 25 PERCENT	TOTAL BENEFITS	DISCOUNTED AT 15 PERCENT	DISCOUNTED AT 20 PERCENT	DISCOUNTED AT 25 PERCENT		
1978	35.64	0.0	0.0	35.64	0.0	0.0	35.64	0.0	0.0	35.64	0.0	35.64	0.0	0.0	0.0	0.0	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	1144.38	1144.38	0.0	2288.76	15.72	15.72	2273.04	15.72	15.72	11.89	11.89	10.92	10.92	10.06	10.06	10.06	0.0	0.0
1981	0.0	0.0	979.50	979.50	0.0	979.50	0.0	979.50	652.21	0.0	574.13	0.0	507.95	64.97	64.97	64.97	0.0	0.0
1982	0.0	0.0	1017.79	1017.79	12.42	1030.21	0.0	1030.21	588.74	0.0	496.58	0.0	421.77	67.44	67.44	67.44	0.0	0.0
1983	0.0	0.0	1058.49	1058.49	12.24	1070.73	0.0	1070.73	532.39	0.0	430.34	0.0	350.89	70.13	70.13	70.13	0.0	0.0
1984	0.0	0.0	1099.65	1099.65	32.16	1131.81	0.0	1131.81	489.21	0.0	379.04	0.0	296.70	74.12	74.12	74.12	0.0	0.0
1985	274.29	274.29	1150.20	1424.49	145.97	1278.52	102.04	1380.56	587.75	76.49	342.09	57.48	272.09	84.97	84.97	84.97	0.0	0.0
1986	0.0	0.0	1198.99	1198.99	11.58	1210.57	0.0	1210.57	395.74	0.0	281.54	0.0	203.10	79.28	79.28	79.28	0.0	0.0
1987	0.0	0.0	1236.56	1236.56	11.49	1248.05	0.0	1248.05	354.74	0.0	241.86	0.0	167.50	81.73	81.73	81.73	0.0	0.0
1988	0.0	0.0	1322.33	1322.33	11.41	1333.74	0.0	1333.74	324.74	0.0	212.18	0.0	141.06	86.04	86.04	86.04	0.0	0.0
1989	0.0	0.0	1359.69	1359.69	11.33	1371.02	0.0	1371.02	294.69	0.0	184.52	0.0	117.77	89.79	89.79	89.79	0.0	0.0
1990	0.0	0.0	1414.29	1414.29	11.24	1425.53	0.0	1425.53	266.44	0.0	159.88	0.0	97.96	93.36	93.36	93.36	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TOTAL 1454.11 1454.11 181816.98 273.43 15.981210639 1004.00 4398.74 906.84 3323.07 825.52 2586.84
 PRESENT WORTH 3394.75 2426.23 1761.32

BENEFIT/COST 4.38 3.68 3.13

INTERNAL RATE OF RETURN = 79.96 PERCENT

App. Table VII-B-30 LINK 107 BANJARNEGARA - SELOKROMO

COST BENEFIT ANALYSIS (MILLION Rp)

1974 COEFFICIENT OF COST 1.00 1975 VALUE (MILLION Rp)
 COEFFICIENT OF BENEFIT 1.00 1.00

ROUTE 07 RINTIH - PRINGSURAT

LINK 07 BANJARNEGARA - SELOKROMO

YEAR	COSTS		REVENUES		DISCOUNTED AT 25 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 15 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS
	CAPITAL COSTS	OPERATING COSTS	VEHICLE MAINTENANCE	EMPLOYMENT SAVINGS	TOTAL	NET BENEFIT	NET BENEFIT	NET BENEFIT	NET BENEFIT	NET BENEFIT	
1978	28.49	28.49	0.0	0.0	0.0	0.0	28.49	0.0	28.49	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	96.92	96.92	0.0	0.0	6.94	637.74	4.54	561.30	6.02	496.60	3.55
1982	0.0	0.0	4.85	5.08	0.0	491.23	0.0	280.86	0.0	234.90	201.21
1983	0.0	0.0	4.95	5.04	0.0	502.82	0.0	249.99	0.0	202.07	164.74
1984	0.0	0.0	5.13	5.00	0.0	513.55	0.0	237.93	0.0	184.31	144.27
1985	0.0	0.0	5.35	5.93	0.0	535.02	0.0	203.39	0.0	150.99	113.46
1986	154.28	154.28	560.31	77.65	0.15	636.11	51.09	208.60	36.35	148.40	26.72
1987	0.0	0.0	5.84	5.84	0.0	594.43	0.0	168.97	0.0	115.20	79.78
1988	0.0	0.0	6.15	5.79	0.0	620.91	0.0	153.48	0.0	100.28	66.67
1989	0.0	0.0	6.62	3.75	0.0	669.57	0.0	143.22	0.0	89.68	57.24
1990	0.0	0.0	7.05	5.70	0.0	711.55	0.0	132.99	0.0	79.80	48.90
1991	0.0	0.0	7.23	5.66	0.0	729.10	0.0	118.50	0.0	69.14	40.08
TOTAL	1154.69	1154.69	584.43	161.24	7.09	6052.74	717.32	1902.50	626.13	1379.80	551.31

PRESENT WORTH 1185.18 753.67 475.67
 BENEFIT/COST 2.45 2.20 1.86

INTERNAL RATE OF RETURN = 47.87 PERCENT

App. Table VIIB-31 LINK 110 SELOKROMO - WONOSOBO

1979 COEFFICIENT OF COST 1.00
 COST BENEFIT ANALYSIS 1.00 1.00 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00

ROUTE NO 81974 - PRINGSURAT
 LINK NO 110 SELOKROMO - WONOSOBO

YEAR	CAPITAL COSTS		VEHICLE MAINTENANCE		EMPLOYMENT		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS
	OPERATING COSTS	SAVINGS	OPERATING COSTS	SAVINGS	OPERATING COSTS	SAVINGS	TOTAL COSTS	TOTAL BENEFITS	TOTAL COSTS	TOTAL BENEFITS	TOTAL COSTS	TOTAL BENEFITS	
1978	15.98	0.0	0.0	0.0	0.0	0.0	15.98	0.0	15.98	0.0	15.98	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	518.04	0.0	0.0	0.0	0.0	0.0	518.04	0.0	518.04	0.0	518.04	0.0	0.0
1982	0.0	357.14	0.0	357.14	0.0	0.0	357.14	0.0	357.14	0.0	357.14	0.0	148.48
1983	0.0	373.31	0.0	373.31	0.0	0.0	373.31	0.0	373.31	0.0	373.31	0.0	52.85
1984	0.0	370.79	0.0	370.79	0.0	0.0	370.79	0.0	370.79	0.0	370.79	0.0	60.94
1985	0.0	408.03	0.0	408.03	0.0	0.0	408.03	0.0	408.03	0.0	408.03	0.0	85.67
1986	109.01	428.23	0.0	428.23	0.0	0.0	537.24	0.0	537.24	0.0	537.24	0.0	71.15
1987	0.0	450.23	0.0	450.23	0.0	0.0	450.23	0.0	450.23	0.0	450.23	0.0	62.11
1988	0.0	483.28	0.0	483.28	0.0	0.0	483.28	0.0	483.28	0.0	483.28	0.0	52.44
1989	0.0	517.66	0.0	517.66	0.0	0.0	517.66	0.0	517.66	0.0	517.66	0.0	71.21
1990	0.0	553.36	0.0	553.36	0.0	0.0	553.36	0.0	553.36	0.0	553.36	0.0	62.63
1991	0.0	557.13	0.0	557.13	0.0	0.0	557.13	0.0	557.13	0.0	557.13	0.0	31.46
TOTAL	642.92	4529.30	135.49	4664.79	392.12	1456.01	341.02	1053.38	299.40	782.21	682.81	2.61	81.42

INTERNAL RATE OF RETURN = 55.21 PERCENT
 PRESENT WORTH 1053.87 712.35 682.81
 BENEFIT/COST 3.71 3.09 2.61

App. Table VII-B-32 LINK 109 WONOSOBO - KERTEK
 COST-BENEFIT ANALYSIS (PART III)

197A COEFFICIENT OF COST 1.00 1.00 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00

1975 VALUE (MILLION Rp)

ROUTE NO	RINTU	PRINGSUPAT	P E S E N T			W O R T H			FIRST YEAR BENEFITS AS PERCENT OF COSTS			
LINK NO	109	WONOSOBO	15 PERCENT COSTS	20 PERCENT COSTS	25 PERCENT COSTS	15 PERCENT BENEFITS	20 PERCENT BENEFITS	25 PERCENT BENEFITS				
YEAR	CAPITAL COSTS	VEHICLE OPERATING COSTS	MAINTENANCE COSTS	EMPLOYMENT SAVINGS	TOTAL BENEFITS	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT COSTS	DISCOUNTED AT 25 PERCENT COSTS	FIRST YEAR BENEFITS AS PERCENT OF COSTS			
1978	11.27	11.93	0.0	0.0	0.0	11.93	0.0	11.93	0.0			
1979	0.46	0.46	0.0	0.0	0.0	0.40	0.0	0.37	0.0			
1980	397.10	397.10	0.0	0.0	4.20	397.25	3.18	275.76	2.92			
1981	0.0	0.0	155.21	5.05	0.0	0.0	106.03	93.32	82.57			
1982	0.0	0.0	167.57	5.97	0.0	0.0	96.76	81.28	69.03			
1983	0.0	0.0	170.50	5.88	0.0	0.0	87.69	70.88	57.80			
1984	0.0	0.0	182.76	12.13	0.0	0.0	84.08	65.13	50.98			
1985	72.38	72.38	196.35	44.96	0.07	27.59	90.75	67.37	50.62			
1986	0.0	0.0	238.57	5.63	0.0	0.0	79.83	56.79	40.97			
1987	0.0	0.0	273.44	5.55	0.0	0.0	80.73	55.04	38.12			
1988	0.0	0.0	320.77	5.44	0.0	0.0	80.64	52.69	35.03			
1989	0.0	0.0	373.01	5.37	0.0	0.0	81.33	50.93	32.50			
1990	0.0	0.0	428.69	5.28	0.0	0.0	81.11	48.67	29.82			
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
TOTAL	492.87	492.87	2506.48	102.28	4.27	2613.02	340.19	871.73	306.56	645.02	281.83	490.13

PRESENT WORTH 531.55 336.46 208.30
 BENEFIT/COST 2.55 2.09 1.74

INTERNAL RATE OF RETURN = 43.32 PERCENT

1979 COEFFICIENT OF COST 1.00
 COEFFICIENT DE BENEFLI 1.00 1.00 1.00 1975 VALUE (MILLION RP)

ROUTE NO RUMTU - PRINGSURAT
 LINK NO 203 KERTEK - PARAKAN

YEAR	COSTS		REVENUES		DISCOUNTED AT 15 PERCENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT		FIRST YEAR BENEFITS AS PERCENT OF COSTS	
	CAPITAL COSTS	OPERATING COSTS	VEHICLE MAINTE-NANCE COSTS	EMPLOY-MENT SAVINGS	TOTAL COSTS	TOTAL BENEFITS	COSTS	BENEFITS	COSTS	BENEFITS		
1978	39.47	0.0	0.0	0.0	39.47	0.0	39.47	0.0	39.47	0.0	0.0	
1979	37.54	0.0	0.11	0.0	37.43	0.11	31.28	0.09	30.03	0.09	0.0	
1980	1431.29	0.0	15.62	1082.25	14.03	993.95	12.93	916.03	11.92	834.11	0.0	
1981	0.0	0.0	502.18	0.0	330.19	0.0	290.61	0.0	257.12	26.94	0.0	
1982	0.0	0.0	495.38	16.80	0.0	300.91	0.0	257.81	0.0	215.57	28.23	
1983	0.0	0.0	538.57	15.67	0.0	276.05	0.0	223.14	0.0	181.94	29.78	
1984	0.0	0.0	570.44	50.61	0.0	268.50	0.0	207.99	0.0	167.80	39.31	
1985	190.02	0.0	613.74	105.54	0.18	720.46	71.44	53.03	201.07	39.85	151.09	
1986	0.0	0.0	725.69	14.94	0.0	740.62	0.0	242.11	0.0	172.24	39.73	
1987	0.0	0.0	822.39	14.88	0.0	337.27	0.0	238.00	0.0	162.27	44.91	
1988	0.0	0.0	934.28	14.81	0.0	949.09	0.0	234.60	0.0	153.28	50.91	
1989	0.0	0.0	1051.67	14.75	0.0	1056.22	0.0	229.18	0.0	143.50	57.19	
1990	0.0	0.0	1167.91	14.68	0.0	1177.59	0.0	270.10	0.0	132.07	63.17	
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	1698.32	1698.32	7414.42	261.41	16.91	7714.74	1225.81	2624.56	1117.74	1951.01	1025.38	1491.58

PRESENT VALUE OF BENEFITS 935.27

BENEFIT/COST 2.10

INTERNAL RATE OF RETURN = 25.96 PERCENT

NET BENEFIT ANALYSIS (MILLION Rp)

1979 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1.00
 1975 VALUE (MILLION Rp)

ROUTE NO	PUNTH	PRINGSIRAT	LINK NO	111-A	FERTIGAANBULU	TEMANGGUNG	D I S C O U N T E D AT					F I R S T Y E A R R E V - E N T S AS PERCENT
YEAR	C O S T S	VEHICLE MAINTENANCE	OPERATING COSTS	SAVINGS	NET BENEFIT	TOTAL	15 PERCENT	20 PERCENT	25 PERCENT	DISCOUNTED AT 25 PERCENT	DISCOUNTED AT 15 PERCENT	
1979	13.07	0.0	0.0	0.0	0.0	0.0	13.07	0.0	13.07	0.0	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	421.37	421.37	0.0	0.0	4.73	4.73	277.04	3.11	243.85	2.74	215.74	2.42
1982	0.0	0.0	297.84	4.59	0.0	297.45	0.0	170.07	0.0	147.45	0.0	121.84
1983	0.0	0.0	309.72	4.56	0.0	314.34	0.0	156.28	0.0	126.33	0.0	103.00
1984	0.0	0.0	378.07	4.51	0.0	382.58	0.0	149.78	0.0	115.25	0.0	90.21
1985	0.0	0.0	355.19	4.51	0.0	359.70	0.0	135.22	0.0	100.39	0.0	75.43
1986	96.70	96.70	383.92	4.45	0.0	480.62	31.61	145.14	27.49	103.26	16.22	74.49
1987	0.0	0.0	415.27	4.45	0.0	420.72	0.0	119.59	0.0	81.54	0.0	55.47
1988	0.0	0.0	455.01	4.42	0.0	459.43	0.0	113.54	0.0	74.20	0.0	49.33
1989	0.0	0.0	512.77	4.39	0.0	517.16	0.0	111.16	0.0	69.60	0.0	45.42
1990	0.0	0.0	575.74	4.36	0.0	580.10	0.0	108.43	0.0	65.06	0.0	39.87
1991	0.0	0.0	522.15	4.33	0.0	526.48	0.0	96.62	0.0	55.56	0.0	32.68
TOTAL	531.14	531.14	4219.79	111.64	4.82	4226.25	321.74	1307.97	279.41	937.37	245.03	690.16
							PRESENT WORTH	985.23	557.94	445.13		
							BENEFIT/COST	4.07	2.35	2.82		

INTERNAL RATE OF RETURN = 67.01 PERCENT

App. Table VII B-36 LINK 112 TEMANGGUNG - KRANGGAN

COST-BENEFIT ANALYSIS (Table B)

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1978	COEFFICIENT OF COST	1.00	1.00	L.20
	COEFFICIENT OF BENEFIT	1.00	1.00	L.20

ROUTE NO 112 TEMANGGUNG - KRANGGAN

YEAR	CAPIT-AL COSTS	VEHICLE OPERAT-ING COSTS	MAINTENANCE COSTS	EMPLOYMENT SAVINGS	BENEFIT-TOTAL	DISCOUNTED AT			DISCOUNTED AT			FIRST YEAR BENEFITS AS PERCENT OF COSTS DISCOUNTED AT 15 PERCENT
						15 PERCENT COSTS	20 PERCENT COSTS	25 PERCENT COSTS	15 PERCENT BENEFITS	20 PERCENT BENEFITS	25 PERCENT BENEFITS	
1979	8.50	0.0	0.0	0.0	0.0	0.60	0.0	0.0	8.60	0.0	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	285.12	285.32	0.0	0.0	1.96	1.96	187.62	1.29	165.12	1.13	146.08	1.00
1982	0.0	0.0	194.46	8.33	0.0	202.79	0.0	115.95	0.0	97.80	0.0	83.06
1983	0.0	0.0	198.28	8.32	0.0	206.60	0.0	102.72	0.0	83.03	0.0	67.70
1984	0.0	0.0	203.87	107.76	0.0	304.63	0.0	131.70	0.0	102.02	0.0	79.86
1985	0.0	0.0	212.12	3.35	0.0	215.47	0.0	81.00	0.0	60.12	0.0	45.19
1986	54.64	56.66	224.87	35.09	0.05	259.96	18.52	84.94	13.18	60.46	9.51	43.61
1987	0.0	0.0	236.67	3.31	0.0	239.98	0.0	68.22	0.0	46.51	0.0	32.21
1988	0.0	0.0	250.75	3.30	0.0	254.05	0.0	62.67	0.0	40.95	0.0	27.22
1989	0.0	0.0	274.20	3.28	0.0	277.48	0.0	59.64	0.0	37.35	0.0	23.84
1990	0.0	0.0	309.75	3.26	0.0	304.01	0.0	56.87	0.0	34.10	0.0	20.89
1991	0.0	0.0	308.27	3.25	0.0	311.52	0.0	50.63	0.0	29.12	0.0	17.13
TOTAL	350.58	350.58	2403.69	172.25	2.01	2577.95	214.72	815.62	186.89	592.59	154.19	441.71

PRESENT WORTH 600.89 BENEFIT/COST 3.17

INTERNAL RATE OF RETURN = 67.53 PERCENT

App. Table VIIB-37 LINK 220 KRANGGAN - PRINGSURAT

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COST-BENEFIT ANALYSIS

1978	COEFFICIENT OF COST	1.00	1.00	1.00
1979	COEFFICIENT OF BENEFIT	1.00	1.00	1.00

1975 VALUE (MILLION RP)

YEAR	LINK NO	ROUTE	DISCOUNTED AT										FIRST YEAR DEV- FITS AS PERCENT OF COSTS
			15 PERCENT	20 PERCENT	25 PERCENT	15 PERCENT	20 PERCENT	25 PERCENT	15 PERCENT	20 PERCENT	25 PERCENT		
1979	220	KRANGGAN - PRINGSURAT	8.74	8.74	8.74	0.0	8.74	0.0	8.74	0.0	8.74	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1981	283.98	283.98	3.52	186.72	2.31	165.34	2.04	152.40	1.80	142.40	1.80	0.0	
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1986	60.00	60.00	3.40	224.58	19.91	14.16	52.23	10.22	37.68	59.62	59.62	59.62	
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	257.62	257.62	69.43	215.37	699.70	187.24	496.69	164.35	367.46	367.46	367.46	367.46	

PRESENT WORTH	474.32	309.44	203.11
BENEFIT/COST	3.20	2.65	2.24

INTERNAL RATE OF RETURN = 54.82 PERCENT

App. Table VII-B-38 TOTAL OF ROUTE II SALAMAN - PURWOREJO
 COST/BENEFIT ANALYSIS (1975-83)

1979	COEFFICIENT OF COST		COEFFICIENT OF BENEFIT		1975 VALUE (MILLION RP)	
	1.00	1.00	1.00	1.00		
TOTAL OF ROUTE SALAMAN - PURWOREJO						
YEAR	COSTS	BENEFITS	D	R	E	S
	OPERATING COSTS	VEHICLE MAINTENANCE	E	S	E	N
	TOTAL COSTS	EMPLOYMENT	T	W	O	R
			T	T	H	
			DISCOUNTED AT 20 PERCENT			
			DISCOUNTED AT 25 PERCENT			
			TOTAL COSTS BENEFITS COSTS BENEFITS COSTS BENEFITS			
1978	38.86	0.0	0.0	38.86	0.0	38.86
1979	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0
1981	130.19	170.19	2.91	868.07	1.91	764.00
1982	0.0	282.51	0.0	169.32	0.0	142.82
1983	0.0	313.94	0.0	162.33	0.0	131.22
1984	0.0	343.41	0.0	219.49	0.0	170.03
1985	0.0	371.46	0.0	144.31	0.0	107.12
1986	226.11	392.46	0.21	404.99	52.59	96.19
1987	0.0	412.02	0.0	120.60	0.0	82.22
1988	0.0	430.34	0.0	109.38	0.0	71.47
1989	0.0	448.05	0.0	99.90	0.0	61.93
1990	0.0	465.47	0.0	89.04	0.0	52.43
1991	0.0	482.34	0.0	79.83	0.0	45.91
TOTAL	1595.16	1585.15	3.12	4216.57	980.82	1327.52
				855.44	962.02	752.73
						715.04
			PRESENT WORTH	346.69		-37.69
			BENEFIT/COST	1.35		0.95
			INTERNAL RATE OF RETURN = 23.57 PERCENT			

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00

1.00

1975 VALUE (MILLION Rp)

ROUTE NO SALAMAN - PINGOREJO

LINK NO 210 SALAMAN - YAPOR

YEAR	CAPITAL COSTS		REVENUES		DISCOUNTED AT 15 PERCENT			DISCOUNTED AT 20 PERCENT			DISCOUNTED AT 25 PERCENT			FIRST YEAR BENEFITS AS PERCENT OF COSTS
	CONSTRUCTION	OPERATING	SAVINGS	MAINTENANCE	TOTAL	BENEFITS	COSTS	BENEFITS	COSTS	BENEFITS	COSTS	BENEFITS	COSTS	
1978	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.17	0.0	24.17	0.0	24.17	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	795.63	0.0	0.0	1.70	1.70	523.14	1.12	462.63	0.98	407.36	0.87	351.26	0.76	299.87
1982	0.0	0.0	270.06	9.28	0.0	279.34	0.0	131.13	0.0	110.60	0.0	93.94	0.0	77.36
1983	0.0	0.0	245.21	9.23	0.0	254.44	0.0	124.50	0.0	102.25	0.0	83.37	0.0	68.29
1984	0.0	0.0	269.50	120.50	0.0	390.00	0.0	168.61	0.0	130.61	0.0	102.24	0.0	83.37
1985	0.0	0.0	292.94	9.10	0.0	302.04	0.0	113.55	0.0	84.29	0.0	63.34	0.0	52.24
1986	160.01	0.0	309.30	9.04	0.15	317.49	52.31	103.79	37.21	73.84	26.85	53.27	30.27	24.26
1987	0.0	0.0	322.58	8.98	0.0	331.56	0.0	94.25	0.0	64.26	0.0	44.50	0.0	36.62
1988	0.0	0.0	335.95	3.97	0.0	344.87	0.0	85.25	0.0	55.70	0.0	37.03	0.0	30.06
1989	0.0	0.0	343.39	8.86	0.0	351.25	0.0	76.79	0.0	49.08	0.0	30.69	0.0	25.05
1990	0.0	0.0	353.90	7.73	0.0	357.63	0.0	69.71	0.0	41.23	0.0	25.26	0.0	20.81
1991	0.0	0.0	372.86	7.66	0.0	372.86	0.0	61.52	0.0	35.38	0.0	20.81	0.0	16.69
TOTAL	979.31	0.0	3073.69	199.20	1.85	2276.84	599.62	1031.20	521.82	747.23	458.38	555.32	225.41	96.94

PRESENT WORTH

225.41

96.94

BENEFIT/COST

1.72

1.43

1.21

INTERNAL RATE OF RETURN = 29.60 PERCENT

1979 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1975 VALUE (MILLION Rp)

ROUTE 17 SALAMAN - PURWOREJO
 LINK 123 MARON - PURWOREJO

YEAR	CAPITAL COSTS		VEHICLE MAINTENANCE - EMPLOYMENT BENEFITS		DISCOUNTED AT 15 PERCENT			DISCOUNTED AT 20 PERCENT			DISCOUNTED AT 25 PERCENT			FIRST YEAR BENEFITS AS PERCENT OF COSTS
	COSTS	SAVINGS	NET	TOTAL	COSTS	BENEFITS	NET	COSTS	BENEFITS	NET	COSTS	BENEFITS	NET	
1978	14.69	0.0	0.0	0.0	14.69	0.0	14.69	0.0	14.69	0.0	14.69	0.0	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	524.55	0.0	1.21	1.21	344.91	0.80	303.56	0.70	268.57	0.62	237.37	0.54	207.37	10.02
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	66.10	0.0	0.0	0.0	21.61	28.60	15.37	20.35	11.09	14.68	13.12	12.27	10.81	17.65
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	605.35	867.31	73.16	1.27	941.74	381.20	296.31	323.63	214.79	294.35	159.73	-134.63	0.54	

PRESENT WORTH -94.89
 BENEFIT/COST 0.70
 INTERNAL RATE OF RETURN = 9.48 PERCENT

APP. Table VIIB-41 TOTAL OF ROUTE IIE SURAKARTA - WONOGIRI

1979 COST BENEFIT ANALYSIS
 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00
 1975 VALUE (MILLION RP)

YEAR	TOTAL OF ROUTE SURAKARTA - WONOGIRI		BENEFITS		PRESENT		DISCOUNTED AT 20 PERCENT		DISCOUNTED AT 25 PERCENT			
	CAPITAL COSTS	OPERATING COSTS	VEHICLE MAINTENANCE COSTS	EMPLOYMENT SAVINGS	TOTAL BENEFITS	NET BENEFIT	15 PERCENT COSTS	15 PERCENT BENEFITS	20 PERCENT COSTS	20 PERCENT BENEFITS		
1979	97.84	0.0	0.0	0.0	0.0	0.0	97.84	0.0	87.84	0.0		
1979	100.57	0.0	0.31	0.31	0.31	0.31	81.55	0.27	83.81	0.26		
1980	594.72	0.0	0.93	0.93	0.93	0.93	449.69	0.70	413.00	0.65		
1981	2241.80	0.0	3.04	3.04	3.04	3.04	1474.02	5.29	1297.36	4.65		
1982	0.0	0.0	1143.63	1143.63	1143.63	1143.63	0.0	653.87	0.0	551.52		
1983	0.0	0.0	1136.73	1136.73	1136.73	1136.73	0.0	579.88	0.0	468.43		
1984	0.0	0.0	1197.10	1197.10	1197.10	1197.10	0.0	635.42	0.0	492.23		
1985	0.0	0.0	1175.75	1175.75	1175.75	1175.75	0.0	561.74	0.0	417.01		
1986	236.84	0.0	1203.80	1203.80	1203.80	1203.80	92.77	457.66	66.71	325.59		
1987	0.0	0.0	1231.78	1231.78	1231.78	1231.78	0.0	354.11	0.0	261.43		
1988	0.0	0.0	1260.99	1260.99	1260.99	1260.99	0.0	315.17	0.0	205.90		
1989	0.0	0.0	1290.72	1290.72	1290.72	1290.72	0.0	283.32	0.0	177.40		
1990	0.0	0.0	1325.06	1325.06	1325.06	1325.06	0.0	250.22	0.0	150.15		
1991	0.0	0.0	1355.41	1355.41	1355.41	1355.41	0.0	222.66	0.0	128.05		
TOTAL	2311.77	2311.77	2249.24	971.94	9.55	13230.73	2192.77	4320.29	1948.70	3163.57	1744.84	2373.74

PRESENT WORTH 2127.51
 BENEFIT/COST 1.97
 INTERNAL RATE OF RETURN = 34.24 PERCENT

App. Table VIIB-42 LINK 127 SURAKARTA - SUKOHARJO
 COST BENEFIT ANALYSIS (1978-83)

1974 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1975 VALUE (MILLION RP)

ROUTE 17 SURAKARTA - WONINGIRI

LINK NO 177 SURAKARTA - SUKOHARJO

YEAR	COSTS			RENTS			DISCOUNTED AT 15 PERCENT COSTS			DISCOUNTED AT 20 PERCENT COSTS			DISCOUNTED AT 25 PERCENT COSTS			FIRST YEAR RENTALS AS PERCENT OF COSTS		
	CAPITAL COSTS	VEHICLE OPERATING COSTS	MAINTENANCE COSTS	VEHICLE OPERATING COSTS	MAINTENANCE COSTS	SAVINGS	TOTAL	15 PERCENT	20 PERCENT	25 PERCENT	TOTAL	15 PERCENT	20 PERCENT	25 PERCENT	TOTAL	15 PERCENT	20 PERCENT	25 PERCENT
1978	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.60	0.0	40.60	0.0	40.60	0.0	40.60	0.0	40.60	0.0	40.60
1979	48.99	48.99	0.0	0.16	0.16	0.0	0.16	42.60	0.14	40.82	0.13	39.19	0.13	39.19	0.13	39.19	0.13	39.19
1980	292.79	292.79	0.0	0.41	0.41	0.0	0.41	221.79	0.31	203.33	0.28	187.39	0.26	187.39	0.26	187.39	0.26	187.39
1981	1091.07	1091.07	0.0	3.75	3.75	0.0	3.75	717.60	2.47	631.61	2.17	538.63	1.92	538.63	1.92	538.63	1.92	538.63
1982	0.0	0.0	0.0	451.05	13.68	0.0	464.73	0.0	265.71	0.0	224.12	0.0	190.35	0.0	190.35	0.0	190.35	
1983	0.0	0.0	0.0	462.05	13.64	0.0	475.72	0.0	236.51	0.0	191.17	0.0	155.88	0.0	155.88	0.0	155.88	
1984	0.0	0.0	0.0	473.00	117.99	0.0	590.99	0.0	255.50	0.0	197.92	0.0	154.92	0.0	154.92	0.0	154.92	
1985	0.0	0.0	0.0	481.53	172.92	0.0	654.50	0.0	246.05	0.0	182.66	0.0	137.26	0.0	137.26	0.0	137.26	
1986	171.01	171.01	0.0	492.19	11.37	0.0	503.56	0.0	187.84	28.35	133.64	20.45	96.41	30.94	96.41	30.94	96.41	
1987	0.0	0.0	0.0	504.46	5.53	0.0	509.99	0.0	144.97	0.0	98.84	0.0	68.55	27.56	68.55	27.56	68.55	
1988	0.0	0.0	0.0	515.54	5.49	0.0	521.07	0.0	128.79	0.0	84.15	0.0	55.95	28.06	55.95	28.06	55.95	
1989	0.0	0.0	0.0	527.39	3.45	0.0	530.84	0.0	114.53	0.0	71.71	0.0	45.77	28.69	45.77	28.69	45.77	
1990	0.0	0.0	0.0	544.09	5.42	0.0	549.51	0.0	102.71	0.0	61.67	0.0	37.76	29.59	37.76	29.59	37.76	
1991	0.0	0.0	0.0	559.77	5.38	0.0	565.15	0.0	91.85	0.0	52.82	0.0	31.07	30.43	31.07	30.43	31.07	

TOTAL 1595.36 1595.36 5012.12 426.82 4.42 5443.37 1061.86 1777.38 944.51 1201.25 846.26 976.12
 PRESENT WORTH 715.54 356.74 129.87

BENEFIT/COST 1.67 1.38 1.15

INTERNAL RATE OF RETURN = 28.42 PERCENT

1978 COEFFICIENT OF COST 1.00 DISCOUNTED AT 15 PERCENT 1.00
 COEFFICIENT OF BENEFIT 1.00 DISCOUNTED AT 20 PERCENT 1.00

1975 VALUE (MILLION RP)

ROUTE 17 SURAKARTA - WONOGIRI
 LINK 17 SUKOHARJO - WONOGIRI

YEAR	COSTS		VEHICLE MAINTENANCE COSTS		VEHICLE OPERATING COSTS		SAVINGS		TOTAL		DISCOUNTED AT 15 PERCENT COSTS		DISCOUNTED AT 20 PERCENT COSTS		DISCOUNTED AT 25 PERCENT COSTS		FIRST YEAR BENEFITS AS PERCENT OF COSTS			
	CAPITAL COSTS	OPERATION COSTS	OPERATING COSTS	SAVINGS	OPERATING COSTS	SAVINGS	OPERATING COSTS	SAVINGS	TOTAL	NET BENEFIT	15 PERCENT	20 PERCENT	25 PERCENT	15 PERCENT	20 PERCENT	25 PERCENT	15 PERCENT	20 PERCENT	25 PERCENT	
1979	47.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.24	0.0	47.24	0.0	47.24	0.0	0.0	0.0	0.0	
1979	51.58	0.0	0.0	0.0	0.15	0.0	0.15	0.0	0.15	0.15	44.85	0.13	42.98	0.12	41.26	0.12	0.0	0.0	0.0	
1980	301.93	0.0	0.0	0.0	0.52	0.0	0.52	0.0	0.52	0.52	228.37	0.39	209.67	0.36	193.24	0.33	0.0	0.0	0.0	
1981	1150.73	0.0	0.0	0.0	4.29	0.0	4.29	0.0	4.29	4.29	755.62	2.82	465.93	2.58	589.17	2.20	0.0	0.0	0.0	
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	388.16	0.0	327.40	0.0	278.08	0.0	34.32	34.32	34.32	
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	343.37	0.0	277.56	0.0	226.31	0.0	34.92	34.92	34.92	
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	379.92	0.0	294.31	0.0	230.37	0.0	44.43	44.43	44.43	
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	315.69	0.0	234.36	0.0	176.11	0.0	62.45	62.45	62.45	
1986	164.93	0.0	0.0	0.0	0.16	0.0	0.16	0.0	0.16	0.16	51.92	0.0	38.36	0.0	27.67	0.0	138.47	138.47	138.47	
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	209.14	0.0	142.59	0.0	98.75	0.0	37.20	37.20	37.20	
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	186.33	0.0	121.75	0.0	80.94	0.0	38.11	38.11	38.11	
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	168.79	0.0	105.69	0.0	67.46	0.0	39.70	39.70	39.70	
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	147.51	0.0	98.52	0.0	54.24	0.0	39.90	39.90	39.90	
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.81	0.0	75.23	0.0	44.25	0.0	40.69	40.69	40.69	
TOTAL	1716.41	1716.41	7237.12	545.12	5.12	7737.36	1170.95	2542.91	1004.19	1862.31	898.58	1397.62	898.58	1397.62	898.58	1397.62	898.58	1397.62	1397.62	1397.62

PRESENT WORTH 499.03

BENEFIT/COST 1.56

INTERNAL RATE OF RETURN = 38.18 PERCENT

App. Table VIIIB-44 TOTAL OF ROUTE IV PONOROGO - BLITAR

COST BENEFIT ANALYSIS (1975-1986)

YEAR	TOTAL OF ROUTE PONOROGO - BLITAR		COEFFICIENT OF COST		COEFFICIENT OF BENEFIT		1975 VALUE (MILLION RP)	
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1978	118.80	118.80	0.0	118.80	0.0	118.80	0.0	118.80
1979	1051.82	1051.82	0.0	4.89	4.89	4.25	876.52	4.07
1980	1920.61	1920.61	7.08	289.00	1452.26	218.52	1323.76	200.69
1981	700.14	700.14	6.40	1058.57	460.35	596.03	405.17	612.60
1982	0.0	0.0	0.0	1421.05	0.0	812.49	0.0	685.31
1983	0.0	0.0	0.0	1526.89	0.0	759.13	0.0	613.82
1984	0.0	0.0	0.0	1895.54	0.0	919.49	0.0	634.81
1985	505.54	505.54	0.57	2172.10	226.86	818.08	162.41	607.31
1986	377.53	377.53	0.36	1969.80	173.42	643.93	87.80	458.11
1987	0.0	0.0	0.0	1990.96	0.0	565.95	0.0	385.86
1988	0.0	0.0	0.0	2120.04	0.0	524.04	0.0	342.40
1989	0.0	0.0	0.0	2245.17	0.0	482.58	0.0	302.17
1990	0.0	0.0	0.0	1756.76	0.0	330.22	0.0	198.15
1991	0.0	0.0	0.0	555.56	0.0	91.90	0.0	52.85
TOTAL	4772.35	4772.35	19.30	19030.21	3292.31	6766.62	2990.46	5097.95
		PRESENT WORTH		3470.31	2107.50		1199.40	
		BENEFIT/COST		2.05		1.70		1.44
		INTERNAL RATE OF RETURN		36.34 PERCENT				

App. Table VIIB-45 LINK 148 PONOROGO - TRENGGALEK

197A COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 1.00 1975 VALUE (MILLION RP)

ROUTE NO	PONOROGO -	ALITAR	DISCOUNTED AT												FIRST YEAR BENEFITS AS PERCENT OF COSTS	
LINK NO	148	PONOROGO -	TRENGGALEK	15 PERCENT			20 PERCENT			25 PERCENT			30 PERCENT			15 PERCENT
YEAR	COSTS	VEHICLE MAINTENANCE OPERATING COSTS	SAVINGS	NET BENEFIT	TOTAL BENEFIT	COSTS	BENEFITS	COSTS	BENEFITS	COSTS	BENEFITS	COSTS	BENEFITS	COSTS	BENEFITS	
1978	43.60	0.0	0.0	0.0	0.0	43.60	0.0	43.60	0.0	43.60	0.0	43.60	0.0	43.60	0.0	
1979	60.05	0.0	0.0	0.14	0.14	34.83	0.12	33.38	0.12	32.05	0.11	30.80	0.11	29.47	0.10	
1980	502.57	0.0	0.0	1.76	1.76	455.70	1.33	418.52	1.22	385.71	1.13	354.58	1.04	323.45	0.95	
1981	700.14	0.0	0.0	6.40	6.40	693.74	5.21	605.17	4.70	529.47	4.28	459.19	3.85	394.90	3.42	
1982	0.0	264.09	25.94	0.0	291.03	0.0	166.40	0.0	140.35	0.0	119.21	0.0	104.92	0.0	90.48	
1983	0.0	293.40	26.79	0.0	320.19	0.0	159.19	0.0	128.68	0.0	104.92	0.0	84.33	0.0	69.54	
1984	0.0	321.87	41.91	0.0	363.78	0.0	157.27	0.0	121.83	0.0	95.36	0.0	76.86	0.0	63.90	
1985	0.0	243.45	125.58	0.0	469.03	0.0	178.96	0.0	132.85	0.0	99.83	0.0	79.86	0.0	65.90	
1986	377.53	387.72	137.12	0.35	525.20	12.42	171.69	87.80	122.14	63.34	88.11	76.86	68.11	61.27	54.90	
1987	0.0	424.12	25.61	0.0	449.73	0.0	127.84	0.0	87.16	0.0	60.36	0.0	48.80	0.0	40.30	
1988	0.0	453.57	25.45	0.0	479.02	0.0	119.64	0.0	73.17	0.0	51.97	0.0	41.27	0.0	33.90	
1989	0.0	490.95	25.29	0.0	516.24	0.0	110.96	0.0	69.68	0.0	46.35	0.0	37.94	0.0	31.20	
1990	0.0	521.19	25.12	0.0	546.31	0.0	102.11	0.0	61.27	0.0	37.54	0.0	29.94	0.0	24.90	
1991	0.0	543.89	24.57	0.0	568.46	0.0	91.90	0.0	52.85	0.0	31.09	0.0	24.92	0.0	20.90	
TOTAL	1764.00	6052.25	485.38	8.65	4545.30	1117.91	1391.62	988.48	999.83	983.17	737.25	737.25	737.25	737.25	737.25	

PRESENT WORTH 272.72 11.35 1.01 0.83
 BENEFIT/COST 1.24 1.01 1.01 0.83
 INTERNAL RATE OF RETURN = 20.27 PERCENT

COST-BENEFIT ANALYSIS (PART II)

1978 COEFFICIENT OF COST 1.00
 COEFFICIENT OF BENEFIT 1.00 1.00 L.00 1975 VALUE (MILLION RP)

ROUTE	NO	PROGRAM	ALITER	LINK	NO	TRENGGALEK - TULUNGAGUNG
COSTS						
YEAR	CAPIT-AL COST	OPERAT-NG COSTS	MAINTENANCE COSTS	VEHICLE OPERAT-NG COSTS	EMPLOYMENT SAVINGS	BENEFIT-TOTAL
1978	27.64	0.0	0.0	0.0	0.0	27.64
1979	803.50	0.0	0.0	4.09	4.09	698.70
1980	0.0	263.57	18.35	0.0	281.92	0.0
1981	0.0	295.43	19.27	0.0	314.70	0.0
1982	0.0	329.28	18.19	0.0	347.47	0.0
1983	0.0	362.13	18.11	0.0	380.24	0.0
1984	0.0	394.98	218.87	0.0	613.85	0.0
1985	287.97	427.83	13.45	0.27	443.55	109.26
1986	0.0	459.75	15.36	0.0	475.11	0.0
1987	0.0	491.39	15.27	0.0	506.66	0.0
1988	0.0	522.74	15.18	0.0	537.92	0.0
1989	0.0	553.77	15.10	0.0	568.87	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1119.11	4101.87	369.15	4.36	4474.38	834.59

DISCOUNTED AT 15 PERCENT COSTS 27.64 0.0 27.64 0.0 27.64 0.0 27.64 0.0
 DISCOUNTED AT 20 PERCENT COSTS 27.64 0.0 27.64 0.0 27.64 0.0 27.64 0.0
 DISCOUNTED AT 25 PERCENT COSTS 27.64 0.0 27.64 0.0 27.64 0.0 27.64 0.0
 FIRST YEAR BENEFITS AS PERCENT OF COSTS 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

PRESENT WORTH 962.48 625.58 389.19
 BENEFIT/COST 2.15 1.80 1.53
 INTERNAL RATE OF RETURN = 39.79 PERCENT

App. Table VII-B-47 LINK 152 TULUNGAGUNG - BLITAR

COST-BENEFIT ANALYSIS

1978	COEFFICIENT OF COST	1.00
	COEFFICIENT OF BENEFIT	1.00
		1.00

1975 VALUE (MILLION RP)

ROUTE	NO	NAME	BLITAR										
LINK	NO	NAME	BLITAR										
YEAR	CAPIT-AL COSTS	OPERATING COSTS	SAVINGS	NET COSTS	REMAINING COSTS	EMPLOYMENT	BENEFITS	DISCOUNTED AT 15 PERCENT COSTS	DISCOUNTED AT 20 PERCENT BENEFITS	DISCOUNTED AT 25 PERCENT COSTS	DISCOUNTED AT 15 PERCENT BENEFITS	WORTH	FIRST YEAR BENEFITS AS PERCENT OF COSTS
1978	47.54	0.0	0.0	0.0	0.0	0.0	47.54	0.0	47.56	0.0	47.56	0.0	0.0
1979	278.26	202.26	0.0	0.0	0.55	0.56	181.10	0.57	173.55	0.55	156.61	0.53	0.0
1980	1317.94	1317.94	0.0	0.0	5.32	5.32	996.55	4.02	915.24	3.69	843.48	3.40	0.0
1981	0.0	0.0	713.79	23.69	0.0	737.47	0.0	484.90	0.0	426.72	0.0	377.58	36.08
1982	0.0	0.0	758.95	23.60	0.0	782.55	0.0	447.43	0.0	377.39	0.0	320.53	38.29
1983	0.0	0.0	822.95	23.51	0.0	846.46	0.0	410.90	0.0	332.14	0.0	270.81	40.44
1984	0.0	0.0	845.80	72.11	0.0	917.91	0.0	396.84	0.0	307.41	0.0	240.62	44.91
1985	315.47	315.47	887.47	368.75	0.30	1254.52	118.60	472.37	88.04	350.67	56.16	263.51	61.48
1986	0.0	0.0	954.23	15.26	0.0	969.49	0.0	216.93	0.0	225.47	0.0	162.65	47.44
1987	0.0	0.0	1019.41	15.16	0.0	1034.57	0.0	294.09	0.0	200.51	0.0	138.86	50.62
1988	0.0	0.0	1093.03	15.07	0.0	1098.10	0.0	271.43	0.0	177.35	0.0	117.91	53.73
1989	0.0	0.0	1145.08	14.97	0.0	1160.05	0.0	249.34	0.0	154.13	0.0	99.65	56.76
1990	0.0	0.0	1205.57	14.98	0.0	1220.45	0.0	228.11	0.0	136.88	0.0	83.87	59.72
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TOTAL	1887.22	1889.23	9415.25	587.00	5.23	10209.54	1363.80	3576.93	1224.39	2694.96	1123.81	2019.93	
													954.12
													1.85

PRESENT WORTH	2223.13
BENEFIT/COST	2.64
INTERNAL RATE OF RETURN	46.62 PERCENT

