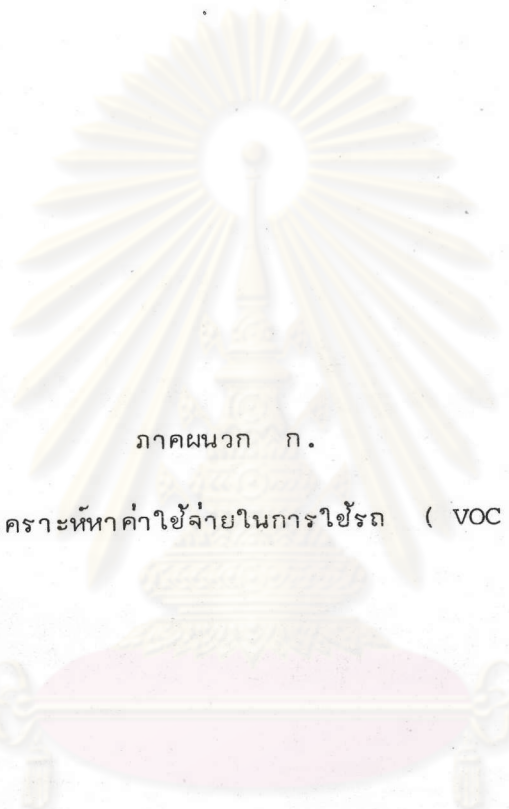


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ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย



ภาคผนวก ก.

ผลการวิเคราะห์หาค่าใช้จ่ายในการใช้รถ (VOC)

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

V.O.C. DATA CHECK

ROUTE NO. 2200 EXISTING

*** GENERAL AND LINK DATA ***

SHOULDER WIDTH = .00 PLEASE CHECK?

*** CURVE DATA ***

CURVE	1	1000.00	1100.00	100.00
CURVE	2	2537.00	2584.00	90.00
CURVE	3	3750.00	3870.00	120.00
CURVE	4	4657.00	4732.00	75.00
CURVE	5	4932.00	4999.00	80.00
CURVE	6	7547.00	7632.00	100.00
CURVE	7	10054.00	10117.00	75.00
CURVE	8	11825.00	11876.00	60.00
CURVE	9	14334.00	14394.00	60.00
CURVE	10	16720.00	16790.00	70.00
CURVE	11	17553.00	17595.00	50.00
CURVE	12	19074.00	19099.00	50.00
CURVE	13	21021.00	21106.00	100.00
CURVE	14	22125.00	22197.00	85.00
CURVE	15	23274.00	23325.00	60.00
CURVE	16	25650.00	25701.00	60.00
CURVE	17	26017.00	26059.00	50.00
CURVE	18	26554.00	26626.00	85.00
CURVE	19	27400.00	27450.00	50.00
CURVE	20	28554.00	28596.00	50.00

*** VERTICAL ALIGNMENT ***

GRADE	1	0.00	196.50
GRADE	2	325.00	197.30
GRADE	3	475.00	190.80

GRADE	4	950.00	188.43
GRADE	5	1850.00	185.69
GRADE	6	2275.00	183.28
GRADE	7	3000.00	182.38
GRADE	8	3100.00	181.94
GRADE	9	3350.00	183.86
GRADE	10	3700.00	185.78
GRADE	11	4175.00	178.98
GRADE	12	4500.00	180.47
GRADE	13	5300.00	193.80
GRADE	14	5650.00	178.50
GRADE	15	5800.00	181.80
GRADE	16	5900.00	180.08
GRADE	17	5950.00	179.50
GRADE	18	6500.00	188.00
GRADE	19	6850.00	186.00
GRADE	20	7600.00	203.00
GRADE	21	7825.00	193.00
GRADE	22	8050.00	199.50
GRADE	23	8300.00	189.00
GRADE	24	8650.00	203.70
GRADE	25	8900.00	197.70
GRADE	26	9000.00	199.31
GRADE	27	9300.00	191.50
GRADE	28	9900.00	209.50
GRADE	29	10100.00	208.16
GRADE	30	10500.00	215.50
GRADE	31	10600.00	211.00
GRADE	32	10850.00	209.02
GRADE	33	11000.00	206.59
GRADE	34	11050.00	208.83
GRADE	35	11475.00	212.80
GRADE	36	11800.00	207.80

ศูนย์วิทยทรัพยากร
สาขางานพิมพ์มหาวิทยาลัย

GRADE 37	12350.00	201.70
GRADE 38	12525.00	204.00
GRADE 39	13300.00	189.60
GRADE 40	13450.00	188.63
GRADE 41	13650.00	182.50
GRADE 42	14150.00	182.00
GRADE 43	14500.00	190.24
GRADE 44	14650.00	187.00
GRADE 45	14875.00	188.10
GRADE 46	15125.00	192.70
GRADE 47	15350.00	192.25
GRADE 48	15825.00	181.10
GRADE 49	16050.00	178.93
GRADE 50	16125.00	176.75
GRADE 51	17775.00	180.30
GRADE 52	18550.00	173.00
GRADE 53	18925.00	172.00
GRADE 54	19150.00	183.20
GRADE 55	19350.00	180.90
GRADE 56	19676.00	184.80
GRADE 57	20600.00	168.00
GRADE 58	20800.00	168.12
GRADE 59	21200.00	165.59
GRADE 60	21650.00	166.00
GRADE 61	21900.00	173.00
GRADE 62	22350.00	164.00
GRADE 63	22500.00	165.00
GRADE 64	22900.00	163.00
GRADE 65	23375.00	174.50
GRADE 66	23675.00	175.90
GRADE 67	24075.00	163.50
GRADE 68	24500.00	179.30
GRADE 69	24875.00	170.80

ศูนย์วิทยพัชกร

ศาลงกรณ์มหาวิทยาลัย

GRADE	70	25225.00	184.50
GRADE	71	25700.00	171.56
GRADE	72	26250.00	185.80
GRADE	73	26500.00	179.50
GRADE	74	26875.00	176.30
GRADE	75	27575.00	178.60
GRADE	76	28275.00	168.78
GRADE	77	28600.00	167.42
GRADE	78	29050.00	162.50
GRADE	79	29375.00	164.00
GRADE	80	29561.00	161.92

*** NARROW BRIDGES ***

BRIDGE	1	3043.00
BRIDGE	2	5683.00
BRIDGE	3	16616.00
BRIDGE	4	18741.00
BRIDGE	5	21014.00



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

V.O.C. DATA CHECK

ROUTE NO. 2300

IMPROVED

*** GENERAL AND LINK DATA ***

SHOULDER WIDTH = .00 PLEASE CHECK?

*** CURVE DATA ***

CURVE	1	4780.00	5080.00	300.00
CURVE	2	12298.00	12555.00	358.00
CURVE	3	14490.00	14694.00	358.00
CURVE	4	17456.00	17552.00	716.00
CURVE	5	19098.00	19186.00	205.00
CURVE	6	19620.00	19725.00	574.00
CURVE	7	20072.00	20191.00	573.00
CURVE	8	21398.00	21559.00	573.00
CURVE	9	27360.00	27637.00	573.00
CURVE	10	27732.00	27907.00	1042.00
CURVE	11	28161.00	28278.00	286.00
CURVE	12	28598.00	28660.00	477.00
CURVE	13	28714.00	28767.00	663.00
CURVE	14	28918.00	29079.00	1146.00
CURVE	15	29299.00	29527.00	498.00

*** VERTICAL ALIGNMENT ***

GRADE	1	0.00	196.50
GRADE	2	175.00	193.80
GRADE	3	575.00	190.80
GRADE	4	800.00	192.60
GRADE	5	950.00	189.20
GRADE	6	1950.00	185.90
GRADE	7	2150.00	185.90
GRADE	8	2625.00	183.50

ศูนย์วิทยพัชกร

ศาลงกรณ์มหาวิทาลัย

GRADE 9	2900.00	184.20
GRADE 10	3725.00	186.80
GRADE 11	4900.00	181.20
GRADE 12	5300.00	193.80
GRADE 13	5675.00	179.00
GRADE 14	5800.00	181.80
GRADE 15	6125.00	179.50
GRADE 16	6500.00	187.70
GRADE 17	7275.00	198.00
GRADE 18	7625.00	203.00
GRADE 19	7825.00	194.00
GRADE 20	8050.00	199.40
GRADE 21	8300.00	189.00
GRADE 22	8450.00	196.50
GRADE 23	8650.00	203.70
GRADE 24	8900.00	199.00
GRADE 25	9075.00	198.70
GRADE 26	9300.00	191.50
GRADE 27	9475.00	199.90
GRADE 28	9825.00	209.60
GRADE 29	10175.00	209.00
GRADE 30	10500.00	215.50
GRADE 31	10625.00	211.00
GRADE 32	10875.00	208.80
GRADE 33	11050.00	206.20
GRADE 34	11300.00	210.70
GRADE 35	11525.00	212.00
GRADE 36	11800.00	204.10
GRADE 37	12600.00	202.50
GRADE 38	12900.00	194.00
GRADE 39	13300.00	189.60
GRADE 40	13650.00	183.00
GRADE 41	14475.00	191.60



ศูนย์วิทยทรัพยากร
 ภาลงกรณ์มหาวิทยาลัย

GRADE	42	14875.00	188.10
GRADE	43	15125.00	193.00
GRADE	44	15600.00	187.90
GRADE	45	15825.00	181.40
GRADE	46	16225.00	177.00
GRADE	47	17775.00	180.30
GRADE	48	18550.00	173.20
GRADE	49	19150.00	183.30
GRADE	50	19350.00	180.90
GRADE	51	19675.00	184.80
GRADE	52	20350.00	171.30
GRADE	53	20500.00	169.40
GRADE	54	21200.00	166.80
GRADE	55	21900.00	173.50
GRADE	56	22500.00	165.90
GRADE	57	22675.00	163.70
GRADE	58	23725.00	175.70
GRADE	59	24075.00	163.50
GRADE	60	24500.00	179.50
GRADE	61	24825.00	170.80
GRADE	62	25225.00	185.30
GRADE	63	25450.00	177.80
GRADE	64	25625.00	173.80
GRADE	65	26250.00	186.10
GRADE	66	26550.00	179.70
GRADE	67	26875.00	176.50
GRADE	68	28275.00	169.00
GRADE	69	28525.00	167.80
GRADE	70	28775.00	164.50
GRADE	71	29075.00	163.00
GRADE	72	29375.00	164.30
GRADE	73	29561.00	162.00



มหาวิทยาลัยราชภัฏวชิราวุธวิทยาลัย

ROAD USER COST CALCULATION
ROUTE NO. 2201 EXISTING

ศูนย์วิจัยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 831228 TIME : 13121

ROAD USER COST CALCULATION

ROUTE NO. 2200 EXISTING

CALCULATION OVER THE YEAR 1982 FOR A MOTOR CYCLE OR A VEHICLE CLASS 1
PEAK HISTOGRAM

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
325.	325.	-1	0.00	30.00	0.	0.65	0.127	0.091	0.218	0.65	0.218
475.	150.	-1	0.00	30.00	0.	0.30	0.059	0.042	0.101	0.95	0.319
950.	475.	0	0.00	30.00	0.	0.95	0.185	0.133	0.318	1.90	0.637
1000.	50.	0	0.00	30.00	0.	0.10	0.020	0.014	0.034	2.00	0.671
1100.	100.	0	0.00	30.00	50.	0.20	0.050	0.028	0.078	2.20	0.749
1850.	750.	0	0.00	30.00	0.	1.50	0.292	0.210	0.503	3.70	1.251
2275.	425.	0	0.00	30.00	0.	0.85	0.166	0.119	0.285	4.55	1.536
2537.	262.	0	0.00	30.00	0.	0.52	0.102	0.073	0.176	5.07	1.711
2584.	47.	0	0.00	30.00	48.	0.09	0.023	0.013	0.037	5.17	1.749
3000.	416.	0	0.00	30.00	0.	0.83	0.152	0.116	0.272	6.00	2.026
3100.	100.	0	0.00	29.93	0.	0.20	0.039	0.028	0.067	6.20	2.093
3350.	250.	0	0.00	30.00	0.	0.50	0.098	0.070	0.168	6.70	2.261
3700.	350.	0	0.00	30.00	0.	0.70	0.137	0.098	0.235	7.40	2.495
3750.	50.	-1	0.00	30.00	0.	0.10	0.020	0.014	0.034	7.50	2.529
3870.	120.	-1	0.00	30.00	55.	0.24	0.054	0.034	0.090	7.74	2.618
4175.	305.	-1	0.00	30.00	0.	0.61	0.119	0.085	0.205	8.35	2.823
4500.	325.	0	0.00	30.00	0.	0.65	0.127	0.091	0.218	9.00	3.041
4657.	157.	1	0.00	30.00	0.	0.31	0.061	0.044	0.105	9.31	3.146
4732.	75.	1	0.00	30.00	44.	0.15	0.037	0.021	0.058	9.46	3.205
4932.	200.	1	0.00	30.00	0.	0.40	0.078	0.055	0.134	9.86	3.339
4999.	67.	1	0.00	30.00	45.	0.13	0.033	0.019	0.052	10.00	3.391
5300.	301.	1	0.00	30.00	0.	0.50	0.118	0.084	0.202	10.50	3.593
5650.	350.	-4	0.00	30.00	0.	0.70	0.142	0.098	0.240	11.30	3.833
5800.	150.	2	0.00	29.95	0.	0.30	0.059	0.042	0.101	11.60	3.934
5900.	100.	-1	0.00	30.00	0.	0.20	0.039	0.028	0.067	11.80	4.000
5950.	50.	-1	0.00	30.00	0.	0.10	0.020	0.014	0.034	11.90	4.034
6500.	550.	1	0.00	30.00	0.	1.10	0.215	0.154	0.369	13.00	4.403
6850.	350.	0	0.00	30.00	0.	0.70	0.137	0.098	0.235	13.70	4.637
7350.	500.	2	0.00	30.00	0.	1.00	0.195	0.140	0.335	14.70	4.972
7547.	197.	2	0.00	30.00	0.	0.39	0.077	0.055	0.132	15.09	5.104
7600.	53.	2	0.00	30.00	50.	0.11	0.026	0.015	0.041	15.20	5.146
7632.	32.	-4	0.00	30.00	50.	0.06	0.016	0.009	0.025	15.26	5.171
7825.	193.	-4	0.00	30.00	0.	0.49	0.078	0.054	0.132	15.65	5.303
8050.	225.	2	0.00	30.00	0.	0.45	0.088	0.063	0.151	16.10	5.454
8300.	250.	-4	0.00	30.00	0.	0.50	0.101	0.070	0.171	16.60	5.625
8650.	350.	4	0.00	30.00	0.	0.70	0.142	0.098	0.240	17.30	5.865
8900.	250.	-2	0.00	30.00	0.	0.50	0.098	0.070	0.168	17.80	6.032
9000.	100.	1	0.00	30.00	0.	0.20	0.039	0.028	0.067	18.00	6.099
9300.	300.	-2	0.00	30.00	0.	0.60	0.117	0.084	0.201	18.60	6.300
9800.	500.	3	0.01	30.00	0.	1.00	0.195	0.140	0.335	19.60	6.635
9900.	100.	3	0.01	30.00	0.	0.20	0.039	0.028	0.067	19.80	6.704
10054.	154.	0	0.00	30.00	0.	0.31	0.060	0.043	0.103	20.11	6.807
10100.	46.	0	0.00	30.00	44.	0.09	0.023	0.013	0.036	20.20	6.842
10117.	17.	1	0.00	30.00	44.	0.03	0.008	0.005	0.013	20.23	6.856
10500.	383.	1	0.00	30.00	0.	0.77	0.150	0.107	0.257	21.00	7.113
10600.	100.	-4	0.00	30.00	0.	0.20	0.040	0.028	0.068	21.20	7.181
10850.	250.	0	0.00	30.00	0.	0.50	0.098	0.070	0.168	21.70	7.349
11000.	150.	-1	0.00	30.00	0.	0.30	0.059	0.042	0.101	22.00	7.449
11050.	50.	4	0.00	30.00	0.	0.10	0.020	0.014	0.034	22.10	7.484

CHAINAGE	INTERIM DISTANCE	GRADE (X)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
11475.	425.	0	0.00	30.00	0.	0.85	0.166	0.119	0.285	22.95	7.768
11800.	325.	-2	0.00	30.00	0.	0.65	0.127	0.091	0.218	23.60	7.986
11825.	25.	0	0.00	30.00	0.	0.05	0.010	0.007	0.017	23.65	8.003
11876.	51.	0	0.00	30.00	39.	0.10	0.025	0.014	0.040	23.75	8.043
12350.	474.	0	0.00	30.00	0.	0.95	0.165	0.133	0.318	24.70	8.360
12525.	175.	1	0.00	30.00	0.	0.35	0.068	0.049	0.117	25.05	8.478
13300.	775.	-1	0.00	30.00	0.	1.55	0.303	0.217	0.520	26.60	8.998
13450.	150.	0	0.00	30.00	0.	0.30	0.059	0.042	0.101	26.90	9.098
13650.	200.	-3	0.00	30.00	0.	0.40	0.078	0.056	0.134	27.30	9.233
14150.	500.	0	0.00	30.00	0.	1.00	0.195	0.140	0.335	28.30	9.568
14334.	184.	2	0.00	30.00	0.	0.37	0.072	0.052	0.123	28.67	9.691
14394.	60.	2	0.00	30.00	39.	0.12	0.030	0.017	0.047	28.79	9.738
14500.	106.	2	0.00	30.00	0.	0.21	0.041	0.030	0.071	29.00	9.809
14650.	150.	-2	0.00	30.00	0.	0.30	0.059	0.042	0.101	29.30	9.909
14875.	225.	0	0.00	30.00	0.	0.45	0.088	0.063	0.151	29.75	10.040
15125.	250.	1	0.00	30.00	0.	0.50	0.098	0.070	0.168	30.25	10.228
15350.	225.	0	0.00	30.00	0.	0.45	0.088	0.063	0.151	30.70	10.378
15825.	475.	-2	0.00	30.00	0.	0.95	0.185	0.133	0.318	31.65	10.697
16050.	225.	0	0.00	30.00	0.	0.45	0.088	0.063	0.151	32.10	10.847
16125.	75.	-2	0.00	30.00	0.	0.15	0.029	0.021	0.050	32.25	10.898
16720.	595.	0	0.00	29.99	0.	1.19	0.232	0.167	0.399	33.44	11.296
16790.	70.	0	0.00	30.00	42.	0.14	0.035	0.020	0.054	33.58	11.351
17553.	763.	0	0.00	30.00	0.	1.53	0.298	0.214	0.511	35.11	11.862
17595.	42.	0	0.00	30.00	36.	0.08	0.021	0.012	0.033	35.19	11.895
17775.	180.	0	0.00	30.00	0.	0.36	0.070	0.050	0.121	35.35	12.015
18550.	775.	0	0.00	30.00	0.	1.55	0.302	0.217	0.519	37.10	12.534
18925.	375.	0	0.00	29.98	0.	0.75	0.146	0.105	0.251	37.85	12.786
19074.	149.	4	0.00	30.00	0.	0.30	0.060	0.042	0.102	38.15	12.888
19099.	25.	4	0.00	30.00	36.	0.05	0.013	0.007	0.020	38.20	12.907
19150.	51.	4	0.00	30.00	0.	0.10	0.021	0.014	0.035	38.30	12.942
19350.	200.	-1	0.00	30.00	0.	0.40	0.078	0.056	0.134	38.70	13.077
19676.	326.	1	0.00	30.00	0.	0.65	0.128	0.091	0.219	39.35	13.295
20600.	924.	-1	0.00	30.00	0.	1.85	0.361	0.259	0.620	41.20	13.916
20800.	200.	0	0.00	30.00	0.	0.40	0.078	0.056	0.134	41.60	14.050
21021.	221.	0	0.00	29.97	0.	0.44	0.086	0.062	0.148	42.04	14.198
21106.	85.	0	0.00	30.00	50.	0.17	0.042	0.024	0.066	42.21	14.264
21200.	94.	0	0.00	30.00	0.	0.19	0.057	0.026	0.083	42.40	14.327
21650.	450.	0	0.00	30.00	0.	0.90	0.175	0.126	0.302	43.30	14.628
21900.	250.	2	0.00	30.00	0.	0.50	0.098	0.070	0.168	43.80	14.796
22125.	225.	-2	0.00	30.00	0.	0.45	0.088	0.063	0.151	44.25	14.946
22197.	72.	-2	0.00	30.00	46.	0.14	0.036	0.020	0.056	44.40	15.002
22350.	153.	-2	0.00	30.00	0.	0.31	0.060	0.043	0.103	44.70	15.105
22500.	150.	0	0.00	30.00	0.	0.30	0.059	0.042	0.101	45.00	15.205
22900.	400.	0	0.00	30.00	0.	0.80	0.156	0.112	0.268	45.80	15.473
23274.	374.	2	0.00	30.00	0.	0.75	0.146	0.105	0.251	46.55	15.724
23325.	51.	2	0.00	30.00	39.	0.10	0.025	0.014	0.040	46.65	15.764
23375.	50.	2	0.00	30.00	0.	0.10	0.020	0.014	0.034	46.75	15.797
23675.	300.	0	0.00	30.00	0.	0.60	0.117	0.084	0.201	47.35	15.998
24075.	400.	-3	0.00	30.00	0.	0.80	0.157	0.112	0.269	48.15	16.267
24500.	425.	3	0.01	30.00	0.	0.85	0.167	0.119	0.286	49.00	16.553
24825.	325.	-2	0.00	30.00	0.	0.65	0.127	0.091	0.218	49.65	16.770
25225.	400.	3	0.01	30.00	0.	0.80	0.157	0.112	0.269	50.45	17.039
25650.	425.	-2	0.00	30.00	0.	0.85	0.166	0.119	0.285	51.30	17.324
25700.	50.	-2	0.00	30.00	39.	0.10	0.025	0.014	0.039	51.40	17.363
25701.	1.	2	0.00	30.00	39.	0.00	0.000	0.000	0.000	51.40	17.364
26017.	316.	2	0.00	30.00	0.	0.63	0.123	0.088	0.212	52.04	17.575
26059.	42.	2	0.00	30.00	36.	0.08	0.021	0.012	0.033	52.12	17.608

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
26250.	191.	2	0.00	30.00	0.	0.38	0.074	0.053	0.128	52.50	17.736
26500.	250.	-2	0.00	30.00	0.	0.50	0.098	0.070	0.168	53.00	17.903
26554.	54.	0	0.00	30.00	0.	0.11	0.021	0.015	0.036	53.11	17.940
26626.	72.	0	0.00	30.00	46.	0.14	0.036	0.020	0.056	53.25	17.996
26875.	249.	0	0.00	30.00	0.	0.50	0.097	0.070	0.167	53.75	18.162
27400.	525.	0	0.00	30.00	0.	1.05	0.205	0.147	0.352	54.80	18.514
27450.	50.	0	0.00	30.00	36.	0.10	0.025	0.014	0.039	54.90	18.553
27575.	125.	0	0.00	30.00	0.	0.25	0.049	0.035	0.084	55.15	18.637
28275.	700.	-1	0.00	30.00	0.	1.40	0.274	0.196	0.470	56.55	19.107
28554.	279.	0	0.00	30.00	0.	0.56	0.109	0.078	0.187	57.11	19.294
28596.	42.	0	0.00	30.00	36.	0.08	0.021	0.012	0.033	57.19	19.326
28600.	4.	0	0.00	30.00	0.	0.01	0.002	0.001	0.003	57.20	19.329
29050.	450.	-1	0.00	30.00	0.	0.90	0.176	0.126	0.302	58.10	19.631
29375.	325.	0	0.00	30.00	0.	0.65	0.127	0.091	0.218	58.75	19.849
29561.	186.	-1	0.00	30.00	0.	0.37	0.073	0.052	0.125	59.12	19.974

ศูนย์วิทยพัชกร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 8/3/2008 TIME : 13:128

ROUTE NO. 2200 EXISTING

CALCULATION OF AVERAGES FOR A MOTOR CYCLE OR A VEHICLE CLASS 1

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOMETER
1982	30.03	59.06	11.68	8.268	19.952	0.675
1983	30.03	59.06	11.68	8.268	19.952	0.675
1984	30.03	59.06	11.68	8.268	19.952	0.675
1985	30.03	59.06	11.68	8.268	19.952	0.675
1986	30.03	59.06	11.68	8.268	19.952	0.675
1987	30.03	59.06	11.68	8.268	19.952	0.675
1988	30.03	59.06	11.68	8.268	19.952	0.675
1989	30.03	59.06	11.68	8.268	19.952	0.675
1990	30.03	59.06	11.68	8.268	19.952	0.675
1991	30.03	59.06	11.68	8.268	19.952	0.675
1992	30.03	59.06	11.68	8.268	19.952	0.675
1993	30.03	59.06	11.68	8.268	19.952	0.675
1994	30.03	59.06	11.68	8.268	19.952	0.675
1995	30.03	59.06	11.68	8.268	19.952	0.675
1996	30.03	59.06	11.68	8.268	19.952	0.675
1997	30.03	59.06	11.68	8.268	19.952	0.675
1998	30.03	59.06	11.68	8.268	19.952	0.675
1999	30.03	59.06	11.68	8.268	19.952	0.675
2000	30.03	59.06	11.68	8.268	19.952	0.675

ศูนย์วิทยพัชกร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 831228 TIME : 13124

ROAD USER COST CALCULATION

ROUTE NO. 2200 EXISTING

CALCULATION OVER THE YEAR 1982 FOR A PASSENGER CAR OR A VEHICLE CLASS 2
PEAK HISTOGRAM

CHAINAGE	INTERIM DISTANCE	GRADE (%)	UCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
325.	325.	-1	0.00	30.00	0.	0.65	0.414	0.631	1.044	0.65	1.044
475.	150.	-1	0.00	30.00	0.	0.30	0.121	0.221	0.482	0.95	1.527
950.	475.	0	0.00	30.00	0.	0.95	0.603	0.922	1.525	1.90	3.051
1000.	50.	0	0.00	30.00	0.	0.10	0.064	0.097	0.161	2.00	3.212
1100.	100.	0	0.00	30.00	50.	0.20	0.132	0.194	0.356	2.20	3.568
1850.	750.	0	0.00	30.00	0.	1.50	0.953	1.455	2.408	3.70	5.975
2275.	425.	0	0.00	30.00	0.	0.85	0.540	0.825	1.364	4.55	7.339
2537.	262.	0	0.00	30.00	0.	0.52	0.333	0.508	0.841	5.07	8.181
2584.	47.	0	0.00	30.00	48.	0.09	0.074	0.091	0.167	5.17	8.348
3000.	416.	0	0.00	30.00	0.	0.83	0.528	0.807	1.335	6.00	9.683
3100.	100.	0	0.00	29.93	0.	0.20	0.127	0.194	0.321	6.20	10.004
3350.	250.	0	0.00	30.00	0.	0.50	0.318	0.485	0.803	6.70	10.807
3700.	350.	0	0.00	30.00	0.	0.70	0.445	0.672	1.124	7.40	11.930
3750.	50.	-1	0.00	30.00	0.	0.10	0.064	0.097	0.161	7.50	12.091
3870.	120.	-1	0.00	30.00	55.	0.24	0.182	0.233	0.415	7.74	12.506
4175.	305.	-1	0.00	30.00	0.	0.61	0.389	0.522	0.910	8.35	13.416
4500.	325.	0	0.00	30.00	0.	0.65	0.413	0.631	1.043	9.00	14.459
4657.	157.	1	0.00	30.00	0.	0.31	0.200	0.305	0.505	9.31	15.034
4732.	75.	1	0.00	30.00	44.	0.15	0.122	0.146	0.267	9.46	15.301
4932.	200.	1	0.00	30.00	0.	0.40	0.285	0.388	0.643	9.86	15.944
4999.	67.	1	0.00	30.00	45.	0.13	0.102	0.130	0.239	10.00	16.183
5300.	301.	1	0.00	30.00	0.	0.60	0.383	0.534	0.957	10.60	17.150
5650.	350.	-4	0.00	30.00	0.	0.70	0.461	0.672	1.140	11.30	18.290
5800.	150.	2	0.00	29.95	0.	0.30	0.121	0.221	0.482	11.60	18.772
5900.	100.	-1	0.00	30.00	0.	0.20	0.122	0.194	0.321	11.80	19.093
5950.	50.	-1	0.00	30.00	0.	0.10	0.064	0.097	0.161	11.90	19.254
6500.	550.	1	0.00	30.00	0.	1.10	0.701	1.052	1.758	13.00	21.021
6850.	350.	0	0.00	30.00	0.	0.70	0.445	0.672	1.124	13.70	22.145
7350.	500.	2	0.00	30.00	0.	1.00	0.635	0.970	1.605	14.70	23.750
7547.	197.	2	0.00	30.00	0.	0.39	0.250	0.382	0.632	15.09	24.382
7600.	53.	2	0.00	30.00	0.	0.11	0.086	0.103	0.189	15.20	24.571
7632.	32.	-4	0.00	30.00	50.	0.06	0.053	0.062	0.115	15.26	24.686
7825.	193.	-4	0.00	30.00	0.	0.39	0.254	0.374	0.629	15.65	25.315
8050.	225.	2	0.00	30.00	0.	0.45	0.285	0.432	0.722	16.10	26.037
8300.	250.	-4	0.00	30.00	0.	0.50	0.322	0.485	0.814	16.60	26.852
8450.	350.	4	0.00	30.00	0.	0.70	0.461	0.672	1.140	17.30	27.992
8900.	250.	-2	0.00	30.00	0.	0.50	0.318	0.485	0.803	17.80	28.794
9000.	100.	1	0.00	30.00	0.	0.20	0.122	0.194	0.321	18.00	29.116
9300.	300.	-2	0.00	30.00	0.	0.60	0.381	0.582	0.963	18.60	30.079
9800.	500.	3	0.01	30.00	0.	1.00	0.638	0.970	1.608	19.60	31.687
9900.	100.	3	0.01	30.00	0.	0.20	0.128	0.194	0.322	19.80	32.009
10054.	154.	0	0.00	30.00	0.	0.31	0.196	0.299	0.494	20.11	32.503
10100.	46.	0	0.00	30.00	44.	0.09	0.074	0.089	0.164	20.20	32.667
10117.	17.	1	0.00	30.00	44.	0.08	0.068	0.083	0.161	20.23	32.777
10500.	383.	1	0.00	30.00	0.	0.77	0.488	0.743	1.231	21.00	33.958
10600.	100.	-4	0.00	30.00	0.	0.20	0.132	0.194	0.326	21.20	34.284
10850.	250.	0	0.00	30.00	0.	0.50	0.318	0.485	0.803	21.70	35.087
11000.	150.	-1	0.00	30.00	0.	0.30	0.191	0.291	0.482	22.00	35.569
11050.	50.	4	0.00	30.00	0.	0.10	0.064	0.097	0.163	22.10	35.732

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CURR ATION TIME	CURR ATION TOTAL COST
11475.	425.	0	0.00	30.00	0.	0.65	0.540	0.825	1.364	22.95	37.096
11800.	325.	-2	0.00	30.00	0.	0.65	0.413	0.631	1.043	23.60	38.139
11825.	25.	0	0.00	30.00	0.	0.05	0.032	0.049	0.080	23.65	38.219
11876.	51.	0	0.00	30.00	39.	0.10	0.083	0.099	0.182	23.75	38.401
12350.	474.	0	0.00	30.00	0.	0.95	0.602	0.920	1.522	24.70	39.922
12525.	175.	1	0.00	30.00	0.	0.35	0.223	0.340	0.562	25.05	40.485
13300.	775.	-1	0.00	30.00	0.	1.55	0.987	1.504	2.491	26.60	42.975
13450.	150.	0	0.00	30.00	0.	0.30	0.191	0.291	0.482	26.90	43.457
13650.	200.	-3	0.00	30.00	0.	0.40	0.255	0.388	0.643	27.30	44.100
14150.	500.	0	0.00	30.00	0.	1.00	0.635	0.970	1.605	28.30	45.705
14334.	184.	2	0.00	30.00	0.	0.37	0.234	0.357	0.591	28.67	46.296
14394.	60.	2	0.00	30.00	39.	0.12	0.097	0.116	0.214	28.79	46.510
14500.	106.	2	0.00	30.00	0.	0.21	0.135	0.206	0.340	29.00	46.850
14650.	150.	-2	0.00	30.00	0.	0.30	0.191	0.291	0.482	29.30	47.331
14875.	225.	0	0.00	30.00	0.	0.45	0.286	0.437	0.722	29.75	48.054
15125.	250.	1	0.00	30.00	0.	0.50	0.318	0.485	0.803	30.25	48.857
15350.	225.	0	0.00	30.00	0.	0.45	0.286	0.437	0.722	30.70	49.679
15825.	475.	-2	0.00	30.00	0.	0.95	0.603	0.922	1.525	31.65	51.104
16050.	225.	0	0.00	30.00	0.	0.45	0.286	0.437	0.722	32.10	51.926
16125.	75.	-2	0.00	30.00	0.	0.15	0.095	0.146	0.241	32.25	52.167
16720.	595.	0	0.00	29.99	0.	1.19	0.756	1.154	1.910	33.44	53.977
16790.	70.	0	0.00	30.00	42.	0.14	0.113	0.136	0.249	33.58	54.226
17553.	763.	0	0.00	30.00	0.	1.53	0.969	1.480	2.449	35.11	56.675
17595.	42.	0	0.00	30.00	36.	0.08	0.068	0.081	0.149	35.19	56.825
17775.	180.	0	0.00	30.00	0.	0.36	0.229	0.349	0.578	35.55	57.403
18550.	775.	0	0.00	30.00	0.	1.55	0.984	1.504	2.488	37.10	59.890
18925.	375.	0	0.00	29.98	0.	0.75	0.476	0.728	1.204	37.85	61.094
19074.	149.	4	0.00	30.00	0.	0.30	0.196	0.285	0.485	38.15	61.580
19099.	25.	4	0.00	30.00	36.	0.05	0.042	0.049	0.090	38.20	61.670
19150.	51.	4	0.00	30.00	0.	0.10	0.067	0.099	0.166	38.30	61.836
19350.	200.	-1	0.00	30.00	0.	0.40	0.255	0.388	0.643	38.70	62.479
19676.	326.	1	0.00	30.00	0.	0.65	0.415	0.632	1.048	39.35	63.526
20600.	924.	-1	0.00	30.00	0.	1.85	1.177	1.793	2.970	41.20	66.496
20800.	200.	0	0.00	30.00	0.	0.40	0.254	0.388	0.642	41.60	67.138
21021.	221.	0	0.00	29.97	0.	0.44	0.281	0.429	0.709	42.04	67.847
21106.	85.	0	0.00	30.00	50.	0.17	0.138	0.165	0.303	42.21	68.150
21200.	94.	0	0.00	30.00	0.	0.19	0.119	0.182	0.302	42.40	68.452
21650.	450.	0	0.00	30.00	0.	0.90	0.572	0.873	1.445	43.30	69.896
21900.	250.	2	0.00	30.00	0.	0.50	0.318	0.485	0.803	43.80	70.699
22125.	225.	-2	0.00	30.00	0.	0.45	0.286	0.437	0.722	44.25	71.421
22197.	72.	-2	0.00	30.00	46.	0.14	0.117	0.140	0.256	44.70	72.168
22350.	153.	-2	0.00	30.00	0.	0.31	0.194	0.297	0.491	44.70	72.168
22500.	150.	0	0.00	30.00	0.	0.30	0.191	0.291	0.482	45.00	72.630
22900.	400.	0	0.00	30.00	0.	0.80	0.508	0.776	1.284	45.80	73.934
23274.	374.	2	0.00	30.00	0.	0.75	0.475	0.726	1.201	46.55	75.134
23325.	51.	2	0.00	30.00	39.	0.10	0.083	0.099	0.182	46.65	75.316
23375.	50.	2	0.00	30.00	0.	0.10	0.064	0.097	0.161	46.75	75.476
23675.	300.	0	0.00	30.00	0.	0.60	0.381	0.582	0.963	47.35	76.439
24075.	400.	-3	0.00	30.00	0.	0.80	0.511	0.776	1.287	48.15	77.726
24500.	425.	3	0.01	30.00	0.	0.85	0.543	0.825	1.367	49.00	79.093
24825.	325.	-2	0.00	30.00	0.	0.65	0.413	0.631	1.043	49.65	80.137
25225.	400.	3	0.01	30.00	0.	0.80	0.511	0.776	1.287	50.45	81.423
25650.	425.	-2	0.00	30.00	0.	0.85	0.540	0.825	1.364	51.30	82.788
25700.	50.	-2	0.00	30.00	39.	0.10	0.081	0.097	0.178	51.40	82.966
25701.	1.	2	0.00	30.00	39.	0.00	0.002	0.002	0.004	51.40	82.969
26017.	316.	2	0.00	30.00	0.	0.63	0.401	0.613	1.014	52.04	83.983
26059.	42.	2	0.00	30.00	36.	0.08	0.068	0.081	0.149	52.12	84.133

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
26250.	191.	2	0.00	30.00	0.	0.38	0.243	0.371	0.613	52.50	84.746
26500.	250.	-2	0.00	30.00	0.	0.50	0.318	0.485	0.803	53.00	85.549
26554.	54.	0	0.00	30.00	0.	0.11	0.069	0.105	0.173	53.11	85.722
26626.	72.	0	0.00	30.00	46.	0.14	0.117	0.140	0.256	53.25	85.978
26875.	249.	0	0.00	30.00	0.	0.50	0.316	0.483	0.799	53.75	86.777
27400.	525.	0	0.00	30.00	0.	1.05	0.667	1.019	1.685	54.80	88.463
27450.	50.	0	0.00	30.00	36.	0.10	0.061	0.097	0.178	54.90	88.641
27575.	125.	0	0.00	30.00	0.	0.25	0.159	0.242	0.401	55.15	89.042
28275.	700.	-1	0.00	30.00	0.	1.40	0.892	1.358	2.250	56.55	91.292
28554.	279.	0	0.00	30.00	0.	0.56	0.354	0.541	0.896	57.11	92.187
28596.	42.	0	0.00	30.00	36.	0.08	0.028	0.081	0.149	57.19	92.337
28600.	4.	0	0.00	30.00	0.	0.01	0.005	0.008	0.013	57.20	92.350
29050.	450.	-1	0.00	30.00	0.	0.90	0.573	0.873	1.446	58.10	93.796
29375.	325.	0	0.00	30.00	0.	0.65	0.413	0.631	1.043	58.75	94.839
29561.	186.	-1	0.00	30.00	0.	0.37	0.237	0.361	0.598	59.12	95.437

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 13/12/20

TIME : 13:27

ROUTE NO. 2200 EXISTING

CALCULATION OF AVERAGES FOR A PASSENGER CAR OR A VEHICLE CLASS 2

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOMETER
1982	30.03	59.06	38.05	57.205	95.332	3.225
1983	30.03	59.06	38.05	57.205	95.332	3.225
1984	30.03	59.06	38.05	57.205	95.332	3.225
1985	30.03	59.06	38.05	57.205	95.332	3.225
1986	30.03	59.06	38.05	57.205	95.332	3.225
1987	30.03	59.06	38.05	57.205	95.332	3.225
1988	30.03	59.06	38.05	57.205	95.332	3.225
1989	30.03	59.06	38.05	57.205	95.332	3.225
1990	30.03	59.06	38.05	57.205	95.332	3.225
1991	30.03	59.06	38.05	57.205	95.332	3.225
1992	30.03	59.06	38.05	57.205	95.332	3.225
1993	30.03	59.06	38.05	57.205	95.332	3.225
1994	30.03	59.06	38.05	57.205	95.332	3.225
1995	30.03	59.06	38.05	57.205	95.332	3.225
1996	30.03	59.06	38.05	57.205	95.332	3.225
1997	30.03	59.06	38.05	57.205	95.332	3.225
1998	30.03	59.06	38.05	57.205	95.332	3.225
1999	30.03	59.06	38.05	57.205	95.332	3.225
2000	30.03	59.06	38.05	57.205	95.332	3.225

ศูนย์วิทยพัชกร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 831228 TIME : 13127

ROAD USER COST CALCULATION

ROUTE NO. 2200 EXISTING

CALCULATION OVER THE YEAR 1982 FOR A LIGHT TRUCK
PEAK HISTOGRAM OR A VEHICLE CLASS 3

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
325.	325.	-1	0.00	30.00	0.	0.65	0.566	0.348	0.914	0.65	0.914
475.	150.	-1	0.00	30.00	0.	0.30	0.261	0.161	0.422	0.95	1.336
950.	475.	0	0.00	30.00	0.	0.95	0.827	0.508	1.335	1.90	2.670
1000.	50.	0	0.00	30.00	0.	0.10	0.087	0.053	0.140	2.00	2.811
1100.	100.	0	0.00	30.00	50.	0.20	0.225	0.107	0.332	2.20	3.143
1850.	750.	0	0.00	30.00	0.	1.50	1.305	0.803	2.107	3.70	5.250
2275.	425.	0	0.00	30.00	0.	0.85	0.740	0.455	1.194	4.55	6.445
2537.	262.	0	0.00	30.00	0.	0.52	0.455	0.280	0.734	5.07	7.181
2584.	47.	0	0.00	30.00	48.	0.09	0.106	0.050	0.156	5.17	7.337
3000.	416.	0	0.00	30.00	0.	0.83	0.724	0.445	1.169	6.00	8.506
3100.	100.	0	0.00	30.00	0.	0.20	0.174	0.107	0.281	6.20	8.787
3350.	250.	0	0.00	30.00	0.	0.50	0.435	0.267	0.703	6.70	9.490
3700.	350.	0	0.00	30.00	0.	0.70	0.609	0.375	0.984	7.40	10.473
3750.	50.	-1	0.00	30.00	0.	0.10	0.087	0.053	0.141	7.50	10.613
3870.	120.	-1	0.00	30.00	55.	0.24	0.253	0.128	0.381	7.74	10.995
4175.	305.	-1	0.00	30.00	0.	0.61	0.531	0.326	0.858	8.35	11.852
4500.	325.	0	0.00	30.00	0.	0.65	0.565	0.348	0.913	9.00	12.765
4657.	157.	1	0.00	30.00	0.	0.31	0.273	0.168	0.441	9.31	13.207
4732.	75.	1	0.00	30.00	44.	0.15	0.169	0.080	0.249	9.46	13.456
4932.	200.	1	0.00	30.00	0.	0.40	0.348	0.214	0.562	9.86	14.018
4999.	67.	1	0.00	30.00	45.	0.13	0.151	0.072	0.223	10.00	14.241
5300.	301.	1	0.00	30.00	0.	0.60	0.524	0.322	0.846	10.60	15.087
5650.	350.	-4	0.00	30.00	0.	0.70	0.631	0.375	1.005	11.30	16.093
5800.	150.	2	0.00	29.96	0.	0.30	0.263	0.161	0.423	11.60	16.516
5900.	100.	-1	0.00	30.00	0.	0.20	0.174	0.107	0.281	11.80	16.797
5950.	50.	-1	0.00	30.00	0.	0.10	0.087	0.053	0.141	11.90	16.938
6500.	350.	1	0.00	30.00	0.	1.10	0.958	0.589	1.546	13.00	18.484
6850.	350.	0	0.00	30.00	0.	0.70	0.609	0.375	0.984	13.70	19.468
7350.	500.	2	0.00	30.00	0.	1.00	0.877	0.535	1.412	14.70	20.879
7547.	197.	2	0.00	30.00	0.	0.39	0.345	0.211	0.556	15.09	21.436
7600.	53.	2	0.00	30.00	50.	0.11	0.120	0.057	0.177	15.20	21.612
7632.	32.	-4	0.00	30.00	50.	0.06	0.074	0.034	0.108	15.26	21.720
7825.	193.	-4	0.00	30.00	0.	0.39	0.348	0.207	0.554	15.65	22.275
8050.	225.	2	0.00	30.00	0.	0.45	0.394	0.241	0.635	16.10	22.910
8300.	250.	-4	0.00	30.00	0.	0.50	0.451	0.267	0.718	16.60	23.628
8650.	350.	4	0.00	30.00	0.	0.70	0.631	0.375	1.005	17.30	24.634
8900.	250.	-2	0.00	30.00	0.	0.50	0.438	0.267	0.706	17.80	25.339
9000.	100.	1	0.00	30.00	0.	0.20	0.174	0.107	0.281	18.00	25.621
9300.	300.	-2	0.00	30.00	0.	0.60	0.526	0.321	0.847	18.60	26.467
9800.	500.	3	0.01	30.00	0.	1.00	0.884	0.535	1.419	19.60	27.886
9900.	100.	3	0.01	30.00	0.	0.20	0.177	0.107	0.284	19.80	28.170
10054.	154.	0	0.00	30.00	0.	0.31	0.268	0.165	0.433	20.11	28.603
10100.	46.	0	0.00	30.00	44.	0.09	0.103	0.049	0.153	20.20	28.756
10117.	17.	1	0.00	30.00	44.	0.03	0.038	0.018	0.056	20.23	28.812
10500.	383.	1	0.00	30.00	0.	0.77	0.667	0.410	1.077	21.00	29.889
10600.	100.	-4	0.00	30.00	0.	0.20	0.160	0.107	0.267	21.20	30.156
10850.	250.	0	0.00	30.00	0.	0.50	0.435	0.267	0.703	21.70	30.859
11000.	150.	-7	0.00	30.00	0.	0.30	0.261	0.161	0.422	22.00	31.280
11050.	50.	4	0.00	30.00	0.	0.10	0.090	0.053	0.144	22.10	31.424

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
11475.	425.	0	0.00	30.00	0.	0.85	0.740	0.455	1.194	22.95	32.638
11800.	325.	-2	0.00	30.00	0.	0.65	0.570	0.348	0.917	23.60	33.556
11825.	25.	0	0.00	30.00	0.	0.05	0.044	0.027	0.070	23.65	33.626
11876.	51.	0	0.00	30.00	39.	0.10	0.115	0.055	0.169	23.75	33.795
12350.	474.	0	0.00	30.00	0.	0.95	0.825	0.507	1.332	24.70	35.127
12525.	175.	1	0.00	30.00	0.	0.35	0.305	0.187	0.492	25.05	35.619
13300.	775.	-1	0.00	30.00	0.	1.55	1.350	0.829	2.179	26.60	37.799
13450.	150.	0	0.00	30.00	0.	0.30	0.261	0.161	0.422	26.90	38.220
13650.	200.	-3	0.00	30.00	0.	0.40	0.354	0.214	0.568	27.30	38.788
14150.	500.	0	0.00	30.00	0.	1.00	0.870	0.535	1.405	28.30	40.193
14334.	184.	2	0.00	30.00	0.	0.37	0.323	0.197	0.519	28.67	40.712
14394.	60.	2	0.00	30.00	39.	0.12	0.136	0.064	0.200	28.79	40.912
14500.	106.	2	0.00	30.00	0.	0.21	0.186	0.113	0.299	29.00	41.211
14650.	150.	-2	0.00	30.00	0.	0.30	0.263	0.161	0.424	29.30	41.635
14875.	225.	0	0.00	30.00	0.	0.45	0.392	0.241	0.632	29.75	42.267
15125.	250.	1	0.00	30.00	0.	0.50	0.435	0.267	0.703	30.25	42.970
15350.	225.	0	0.00	30.00	0.	0.45	0.392	0.241	0.632	30.70	43.602
15825.	475.	-2	0.00	30.00	0.	0.95	0.833	0.508	1.341	31.65	44.943
16050.	225.	0	0.00	30.00	0.	0.45	0.392	0.241	0.632	32.10	45.575
16125.	75.	-2	0.00	30.00	0.	0.15	0.131	0.080	0.212	32.25	45.787
16720.	595.	0	0.00	29.99	0.	1.19	1.035	0.637	1.672	33.44	47.459
16790.	70.	0	0.00	30.00	42.	0.14	0.157	0.075	0.232	33.58	47.691
17553.	763.	0	0.00	30.00	0.	1.53	1.328	0.816	2.144	35.11	49.835
17595.	42.	0	0.00	30.00	36.	0.08	0.094	0.045	0.139	35.19	49.975
17775.	180.	0	0.00	30.00	0.	0.36	0.313	0.193	0.506	35.55	50.481
18550.	775.	0	0.00	30.00	0.	1.55	1.349	0.829	2.178	37.10	52.658
18925.	375.	0	0.00	29.98	0.	0.75	0.653	0.401	1.054	37.85	53.712
19074.	149.	4	0.00	30.00	0.	0.30	0.269	0.159	0.428	38.15	54.140
19099.	25.	4	0.00	30.00	36.	0.05	0.058	0.027	0.085	38.20	54.225
19150.	51.	4	0.00	30.00	0.	0.10	0.092	0.055	0.147	38.30	54.371
19350.	200.	-1	0.00	30.00	0.	0.40	0.348	0.214	0.562	38.70	54.934
19676.	326.	1	0.00	30.00	0.	0.65	0.568	0.349	0.917	39.35	55.850
20600.	924.	-1	0.00	30.00	0.	1.85	1.609	0.989	2.598	41.20	58.448
20800.	200.	0	0.00	30.00	0.	0.40	0.348	0.214	0.562	41.60	59.010
21021.	221.	0	0.00	29.97	0.	0.44	0.385	0.236	0.621	42.04	59.631
21106.	85.	0	0.00	30.00	50.	0.17	0.191	0.091	0.282	42.21	59.914
21200.	94.	0	0.00	30.00	0.	0.19	0.164	0.101	0.264	42.40	60.178
21650.	450.	0	0.00	30.00	0.	0.90	0.783	0.481	1.265	43.30	61.442
21900.	250.	2	0.00	30.00	0.	0.50	0.438	0.267	0.706	43.80	62.148
22125.	225.	-2	0.00	30.00	0.	0.45	0.394	0.241	0.635	44.25	62.783
22197.	72.	-2	0.00	30.00	46.	0.14	0.163	0.077	0.240	44.40	63.023
22350.	153.	-2	0.00	30.00	0.	0.31	0.268	0.164	0.432	44.70	63.455
22500.	150.	0	0.00	30.00	0.	0.30	0.261	0.163	0.422	45.00	63.876
22900.	400.	0	0.00	30.00	0.	0.80	0.696	0.428	1.124	45.80	65.000
23274.	374.	2	0.00	30.00	0.	0.75	0.656	0.400	1.056	46.55	66.056
23325.	51.	2	0.00	30.00	39.	0.10	0.115	0.055	0.170	46.65	66.226
23375.	50.	2	0.00	30.00	0.	0.10	0.088	0.053	0.141	46.75	66.367
23675.	300.	0	0.00	30.00	0.	0.60	0.522	0.321	0.843	47.35	67.210
24075.	400.	-3	0.00	30.00	0.	0.80	0.707	0.428	1.135	48.15	68.346
24500.	425.	3	0.01	30.00	0.	0.85	0.751	0.455	1.206	49.00	69.552
24825.	325.	-2	0.00	30.00	0.	0.65	0.570	0.348	0.917	49.65	70.469
25225.	400.	3	0.01	30.00	0.	0.80	0.707	0.428	1.135	50.45	71.604
25650.	425.	-2	0.00	30.00	0.	0.85	0.745	0.455	1.200	51.30	72.804
25700.	50.	-2	0.00	30.00	39.	0.10	0.113	0.053	0.167	51.40	72.971
25701.	1.	2	0.00	30.00	39.	0.10	0.062	0.031	0.093	51.40	72.974
26017.	316.	2	0.00	30.00	0.	0.63	0.554	0.338	0.892	52.04	73.866
26059.	42.	2	0.00	30.00	36.	0.08	0.095	0.045	0.140	52.12	74.006

CHAINAGE	INTERIM DISTANCE	GRADE (X)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
26250.	191.	2	0.00	30.00	0.	0.38	0.335	0.204	0.539	52.50	74.545
26500.	250.	-2	0.00	30.00	0.	0.50	0.438	0.267	0.706	53.00	75.251
26554.	54.	0	0.00	30.00	0.	0.11	0.094	0.058	0.152	53.11	75.403
26626.	72.	0	0.00	30.00	46.	0.14	0.162	0.077	0.239	53.25	75.642
26875.	249.	0	0.00	30.00	0.	0.50	0.433	0.266	0.700	53.75	76.342
27400.	525.	0	0.00	30.00	0.	1.05	0.914	0.562	1.475	54.80	77.817
27450.	50.	0	0.00	30.00	36.	0.10	0.112	0.053	0.166	54.90	77.983
27575.	125.	0	0.00	30.00	0.	0.25	0.218	0.134	0.351	55.15	78.334
28275.	700.	-1	0.00	30.00	0.	1.40	1.219	0.749	1.968	56.55	80.302
28554.	279.	0	0.00	30.00	0.	0.56	0.485	0.299	0.784	57.11	81.086
28596.	42.	0	0.00	30.00	36.	0.08	0.094	0.045	0.139	57.19	81.226
28600.	4.	0	0.00	30.00	0.	0.01	0.007	0.004	0.011	57.20	81.237
29050.	450.	-1	0.00	30.00	0.	0.90	0.784	0.481	1.265	58.10	82.502
29375.	325.	0	0.00	30.00	0.	0.65	0.566	0.348	0.913	58.75	83.415
29561.	186.	-1	0.00	30.00	0.	0.37	0.324	0.199	0.523	59.12	83.938

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 8/31/200

TIME : 13:30

ROUTE NO. 2200 EXISTING

CALCULATION OF AVERAGES FOR A LIGHT TRUCK
OR A VEHICLE CLASS 3

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOMETER
1982	30.03	59.06	52.25	31.595	83.846	2.836
1983	30.03	59.06	52.25	31.595	83.846	2.836
1984	30.03	59.06	52.25	31.595	83.846	2.836
1985	30.03	59.06	52.25	31.595	83.846	2.836
1986	30.03	59.06	52.25	31.595	83.846	2.836
1987	30.03	59.06	52.25	31.595	83.846	2.836
1988	30.03	59.06	52.25	31.595	83.846	2.836
1989	30.03	59.06	52.25	31.595	83.846	2.836
1990	30.03	59.06	52.25	31.595	83.846	2.836
1991	30.03	59.06	52.25	31.595	83.846	2.836
1992	30.03	59.06	52.25	31.595	83.846	2.836
1993	30.03	59.06	52.25	31.595	83.846	2.836
1994	30.03	59.06	52.25	31.595	83.846	2.836
1995	30.03	59.06	52.25	31.595	83.846	2.836
1996	30.03	59.06	52.25	31.595	83.846	2.836
1997	30.03	59.06	52.25	31.595	83.846	2.836
1998	30.03	59.06	52.25	31.595	83.846	2.836
1999	30.03	59.06	52.25	31.595	83.846	2.836
2000	30.03	59.06	52.25	31.595	83.846	2.836

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 831228 TIME : 13:30

ROAD USER COST CALCULATION

ROUTE NO. 2200 EXISTING

CALCULATION OVER THE YEAR 1982 FOR A MED TRUCK
PEAK HISTOGRAM

OR A VEHICLE CLASS 4

CHAINAGE	INTERIM DISTANCE	GRADE (%)	UCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
325.	325.	-1	0.00	30.00	0.	0.45	1.457	1.437	2.893	0.65	2.023
475.	150.	-1	0.00	30.00	0.	0.30	0.672	0.663	1.335	0.95	4.228
950.	475.	0	0.00	30.00	0.	0.95	2.147	2.100	4.247	1.90	8.475
1000.	50.	0	0.00	30.00	0.	0.10	0.226	0.221	0.447	2.00	8.922
1100.	100.	0	0.00	30.00	50.	0.20	0.632	0.442	1.074	2.20	9.996
1850.	750.	0	0.00	30.00	0.	1.50	3.390	3.315	6.705	3.70	16.701
2275.	425.	0	0.00	30.00	0.	0.85	1.921	1.879	3.800	4.55	20.500
2537.	262.	0	0.00	30.00	0.	0.52	1.184	1.158	2.342	5.07	22.842
2584.	47.	0	0.00	30.00	48.	0.09	0.297	0.208	0.505	5.17	23.347
3000.	416.	0	0.00	30.00	0.	0.83	1.880	1.839	3.719	6.00	27.066
3100.	100.	0	0.00	29.92	0.	0.20	0.452	0.442	0.894	6.20	27.960
3350.	250.	0	0.00	30.00	0.	0.50	1.130	1.105	2.235	6.70	30.195
3700.	350.	0	0.00	30.00	0.	0.70	1.582	1.547	3.129	7.40	33.324
3750.	50.	-1	0.00	30.00	0.	0.10	0.224	0.221	0.445	7.50	33.769
3870.	120.	-1	0.00	30.00	55.	0.24	0.691	0.530	1.221	7.74	34.990
4175.	305.	-1	0.00	30.00	0.	0.61	1.367	1.348	2.715	8.35	37.705
4500.	325.	0	0.00	30.00	0.	0.65	1.469	1.437	2.906	9.00	40.611
4657.	157.	1	0.00	30.00	0.	0.31	0.704	0.694	1.398	9.31	42.009
4732.	75.	1	0.00	30.00	44.	0.15	0.471	0.332	0.803	9.46	42.811
4932.	200.	1	0.00	30.00	0.	0.40	0.896	0.884	1.780	9.86	44.591
4999.	67.	1	0.00	30.00	45.	0.13	0.421	0.296	0.717	10.00	45.308
5300.	301.	1	0.00	30.00	0.	0.60	1.349	1.330	2.679	10.60	47.988
5650.	350.	-4	0.00	30.00	0.	0.70	1.642	1.547	3.189	11.30	51.177
5800.	150.	2	0.00	29.94	0.	0.30	0.675	0.663	1.338	11.60	52.515
5900.	100.	-1	0.00	30.00	0.	0.20	0.448	0.442	0.890	11.80	53.405
5950.	50.	-1	0.00	30.00	0.	0.10	0.224	0.221	0.445	11.90	53.850
6500.	550.	1	0.00	30.00	0.	1.10	2.465	2.431	4.896	13.00	58.746
6850.	350.	0	0.00	30.00	0.	0.70	1.582	1.547	3.129	13.70	61.875
7350.	500.	2	0.00	30.00	0.	1.00	2.250	2.210	4.460	14.70	66.335
7547.	197.	2	0.00	30.00	0.	0.39	0.886	0.671	1.557	15.10	68.092
7600.	53.	2	0.00	30.00	50.	0.11	0.334	0.234	0.568	15.20	68.660
7632.	32.	-4	0.00	30.00	50.	0.06	0.208	0.141	0.349	15.27	69.009
7825.	193.	-4	0.00	30.00	0.	0.39	0.906	0.853	1.759	15.65	70.768
8050.	225.	2	0.00	30.00	0.	0.45	1.012	0.995	2.007	16.10	72.775
8300.	250.	-4	0.00	30.00	0.	0.50	1.173	1.105	2.278	16.60	75.053
8650.	350.	4	0.00	30.00	0.	0.70	1.642	1.547	3.189	17.30	78.242
8900.	250.	-2	0.00	30.00	0.	0.50	1.125	1.105	2.230	17.80	80.472
9000.	100.	1	0.00	30.00	0.	0.20	0.448	0.442	0.890	18.00	81.362
9300.	300.	-2	0.00	30.00	0.	0.60	1.360	1.326	2.676	18.60	84.038
9800.	500.	3	0.01	30.00	0.	1.00	2.284	2.210	4.494	19.60	88.531
9900.	100.	3	0.01	30.00	0.	0.20	0.457	0.442	0.899	19.80	89.430
10054.	154.	0	0.00	30.00	0.	0.31	0.696	0.681	1.377	20.11	90.807
10100.	46.	0	0.00	30.00	44.	0.09	0.291	0.203	0.494	20.20	91.301
10117.	17.	1	0.00	30.00	44.	0.03	0.102	0.075	0.177	20.24	91.478
10500.	383.	1	0.00	30.00	0.	0.77	1.716	1.693	3.409	21.00	94.887
10600.	100.	-4	0.00	30.00	0.	0.20	0.469	0.442	0.911	21.20	95.803
10850.	250.	0	0.00	30.00	0.	0.50	1.130	1.105	2.235	21.70	98.038
11000.	150.	-1	0.00	30.00	0.	0.30	0.672	0.663	1.335	22.00	99.373
11050.	50.	4	0.00	30.00	0.	0.10	0.225	0.221	0.456	22.10	99.829

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
11475.	425.	0	0.00	30.00	0.	0.85	1.921	1.879	3.800	22.95	103.629
11800.	325.	-2	0.00	30.00	0.	0.65	1.462	1.437	2.899	23.60	106.527
11825.	25.	0	0.00	30.00	0.	0.05	0.113	0.111	0.223	23.65	106.751
11876.	51.	0	0.00	30.00	39.	0.10	0.322	0.225	0.548	23.75	107.299
12350.	474.	0	0.00	30.00	0.	0.95	2.142	2.095	4.238	24.70	111.536
12525.	175.	1	0.00	30.00	0.	0.35	0.784	0.774	1.558	25.05	113.094
13300.	775.	-1	0.00	30.00	0.	1.55	3.473	3.426	6.899	26.60	119.993
13450.	150.	0	0.00	30.00	0.	0.30	0.678	0.663	1.341	26.90	121.334
13650.	200.	-3	0.00	30.00	0.	0.40	0.913	0.884	1.797	27.30	123.131
14150.	500.	0	0.00	30.00	0.	1.00	2.260	2.210	4.470	28.30	127.601
14334.	184.	2	0.00	30.00	0.	0.37	0.828	0.813	1.641	28.67	129.242
14394.	60.	2	0.00	30.00	39.	0.12	0.378	0.265	0.643	28.79	129.886
14500.	106.	2	0.00	30.00	0.	0.21	0.477	0.469	0.945	29.00	130.831
14650.	150.	-2	0.00	30.00	0.	0.30	0.675	0.663	1.338	29.30	132.169
14875.	225.	0	0.00	30.00	0.	0.45	1.017	0.995	2.011	29.75	134.180
15125.	250.	1	0.00	30.00	0.	0.50	1.120	1.105	2.225	30.25	136.406
15350.	225.	0	0.00	30.00	0.	0.45	1.017	0.995	2.011	30.70	138.417
15825.	475.	-2	0.00	30.00	0.	0.95	2.137	2.100	4.237	31.65	142.654
16050.	225.	0	0.00	30.00	0.	0.45	1.017	0.995	2.011	32.10	144.666
16125.	75.	-2	0.00	30.00	0.	0.15	0.337	0.332	0.669	32.25	145.335
16720.	595.	0	0.00	29.99	0.	1.19	2.689	2.630	5.319	33.44	150.654
16790.	70.	0	0.00	30.00	42.	0.14	0.442	0.309	0.752	33.58	151.406
17553.	763.	0	0.00	30.00	0.	1.53	3.449	3.372	6.821	35.11	158.227
17595.	42.	0	0.00	30.00	36.	0.08	0.265	0.186	0.451	35.19	158.678
17775.	180.	0	0.00	30.00	0.	0.36	0.814	0.796	1.609	35.55	160.287
18550.	775.	0	0.00	30.00	0.	1.55	3.503	3.426	6.929	37.10	167.216
18925.	375.	0	0.00	29.98	0.	0.75	1.795	1.748	3.543	37.85	170.768
19074.	149.	4	0.00	30.00	0.	0.30	0.699	0.659	1.358	38.15	171.926
19099.	25.	4	0.00	30.00	36.	0.05	0.162	0.111	0.273	38.20	172.199
19150.	51.	4	0.00	30.00	0.	0.10	0.239	0.225	0.465	38.30	172.663
19350.	200.	-1	0.00	30.00	0.	0.40	0.896	0.884	1.780	38.70	174.444
19676.	326.	1	0.00	30.00	0.	0.65	1.461	1.441	2.902	39.35	177.346
20600.	924.	-1	0.00	30.00	0.	1.85	4.131	4.088	8.225	41.20	185.571
20800.	200.	0	0.00	30.00	0.	0.40	0.904	0.884	1.788	41.60	187.359
21021.	221.	0	0.00	29.96	0.	0.44	0.999	0.977	1.976	42.04	189.336
21106.	85.	0	0.00	30.00	50.	0.17	0.567	0.376	0.943	42.21	190.279
21200.	94.	0	0.00	30.00	0.	0.19	0.425	0.415	0.840	42.40	191.088
21650.	450.	0	0.00	30.00	0.	0.90	2.034	1.989	4.023	43.30	195.111
21900.	250.	2	0.00	30.00	0.	0.50	1.125	1.105	2.230	43.80	197.341
22125.	225.	-2	0.00	30.00	0.	0.45	1.012	0.995	2.007	44.25	199.347
22197.	72.	-2	0.00	30.00	46.	0.14	0.454	0.318	0.772	44.40	200.119
22350.	153.	-2	0.00	30.00	0.	0.31	0.688	0.676	1.365	44.70	201.484
22500.	150.	0	0.00	30.00	0.	0.30	0.678	0.663	1.341	45.00	202.825
22900.	400.	0	0.00	30.00	0.	0.80	1.808	1.768	3.576	45.80	206.401
23274.	374.	2	0.00	30.00	0.	0.75	1.683	1.653	3.336	46.55	209.737
23325.	51.	2	0.00	30.00	39.	0.10	0.321	0.225	0.547	46.65	210.284
23375.	50.	2	0.00	30.00	0.	0.10	0.225	0.221	0.446	46.75	210.730
23675.	300.	0	0.00	30.00	0.	0.60	1.356	1.326	2.682	47.35	213.412
24075.	400.	-3	0.00	30.00	0.	0.80	1.827	1.768	3.595	48.15	217.007
24500.	425.	3	0.01	30.00	0.	0.85	1.941	1.879	3.820	49.00	220.826
24825.	325.	-2	0.00	30.00	0.	0.65	1.462	1.437	2.899	49.65	223.725
25225.	400.	3	0.01	30.00	0.	0.80	1.827	1.768	3.595	50.45	227.320
25650.	425.	-2	0.00	30.00	0.	0.85	1.912	1.879	3.791	51.30	231.111
25700.	50.	-2	0.00	30.00	39.	0.10	0.315	0.221	0.536	51.40	231.647
25701.	1.	2	0.00	30.00	39.	0.00	0.006	0.004	0.011	51.40	231.658
26017.	316.	2	0.00	30.00	0.	0.63	1.422	1.397	2.819	52.04	234.476
26059.	42.	2	0.00	30.00	36.	0.08	0.265	0.186	0.450	52.12	234.926

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
26250.	191.	2	0.00	30.00	0.	0.38	0.059	0.044	1.704	52.50	236.630
26500.	250.	-2	0.00	30.00	0.	0.50	1.125	1.105	2.230	53.00	238.860
26554.	54.	0	0.00	30.00	0.	0.11	0.244	0.239	0.483	53.11	239.343
26626.	72.	0	0.00	30.00	46.	0.14	0.455	0.318	0.773	53.25	240.116
26875.	249.	0	0.00	30.00	0.	0.50	1.125	1.101	2.226	53.75	242.342
27400.	525.	0	0.00	30.00	0.	1.05	2.373	2.321	4.694	54.80	247.036
27450.	50.	0	0.00	30.00	36.	0.10	0.316	0.221	0.537	54.90	247.572
27575.	125.	0	0.00	30.00	0.	0.25	0.565	0.553	1.118	55.15	248.690
28275.	700.	-1	0.00	30.00	0.	1.40	3.137	3.094	6.231	56.55	254.921
28554.	279.	0	0.00	30.00	0.	0.56	1.261	1.233	2.494	57.11	257.415
28596.	42.	0	0.00	30.00	36.	0.08	0.265	0.186	0.451	57.19	257.866
28600.	4.	0	0.00	30.00	0.	0.01	0.018	0.018	0.036	57.20	257.902
29050.	450.	-1	0.00	30.00	0.	0.90	2.017	1.989	4.006	58.10	261.908
29375.	325.	0	0.00	30.00	0.	0.65	1.469	1.437	2.906	58.75	264.813
29561.	186.	-1	0.00	30.00	0.	0.37	0.834	0.822	1.656	59.12	266.469

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ROUTE NO. 2200 EXISTING

DATE : 03/22/90

TIME : 13:33

CALCULATION OF AVERAGES FOR A MED TRUCK OR A VEHICLE CLASS 4

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOMETER
1982	30.03	59.06	135.66	130.516	266.176	9.004
1983	30.03	59.06	135.66	130.516	266.176	9.004
1984	30.03	59.06	135.66	130.516	266.176	9.004
1985	30.03	59.06	135.66	130.516	266.176	9.004
1986	30.03	59.06	135.66	130.516	266.176	9.004
1987	30.03	59.06	135.66	130.516	266.176	9.004
1988	30.03	59.06	135.66	130.516	266.176	9.004
1989	30.03	59.06	135.66	130.516	266.176	9.004
1990	30.03	59.06	135.66	130.516	266.176	9.004
1991	30.03	59.06	135.66	130.516	266.176	9.004
1992	30.03	59.06	135.66	130.516	266.176	9.004
1993	30.03	59.06	135.66	130.516	266.176	9.004
1994	30.03	59.06	135.66	130.516	266.176	9.004
1995	30.03	59.06	135.66	130.516	266.176	9.004
1996	30.03	59.06	135.66	130.516	266.176	9.004
1997	30.03	59.06	135.66	130.516	266.176	9.004
1998	30.03	59.06	135.66	130.516	266.176	9.004
1999	30.03	59.06	135.66	130.516	266.176	9.004
2000	30.03	59.06	135.66	130.516	266.176	9.004

ศูนย์วิทยพัชกร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 8/12/88 TIME : 13:34

ROAD USER COST CALCULATION

ROUTE NO. 2200 EXISTING

CALCULATION OVER THE YEAR 1982 FOR A HWY TRUCK OR A VEHICLE CLASS 5
PEAK HISTOGRAM

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
325.	325.	-1	0.00	30.00	0.	0.65	2,452	1,049	4,301	0.65	4,301
475.	150.	-1	0.00	30.00	0.	0.30	1,131	0,054	1,285	0.95	6,286
950.	475.	0	0.00	30.00	0.	0.95	3,539	2,703	6,242	1.90	12,527
1000.	50.	0	0.00	30.00	0.	0.10	0,373	0,205	0,578	2.00	13,104
1100.	100.	0	0.00	30.00	50.	0.20	1,286	0,569	1,855	2.20	15,039
1850.	750.	0	0.00	30.00	0.	1.50	5,588	4,268	9,856	3.70	24,894
2275.	425.	0	0.00	30.00	0.	0.85	3,166	2,418	5,585	4.55	30,479
2537.	262.	0	0.00	30.00	0.	0.52	1,952	1,491	3,443	5.07	33,923
2584.	47.	0	0.00	30.00	48.	0.09	0,604	0,267	0,872	5.17	34,793
3000.	416.	0	0.00	30.00	0.	0.83	3,099	2,367	5,466	6.00	40,259
3100.	100.	0	0.00	30.00	0.	0.20	0,745	0,569	1,314	6.20	41,573
3350.	250.	0	0.00	30.00	0.	0.50	1,862	1,423	3,285	6.70	44,858
3700.	350.	0	0.00	30.00	0.	0.70	2,608	1,992	4,599	7.40	49,457
3750.	50.	-1	0.00	30.00	0.	0.10	0,377	0,205	0,582	7.50	50,039
3870.	120.	-1	0.00	30.00	55.	0.24	1,365	0,683	2,047	7.74	52,087
4175.	305.	-1	0.00	30.00	0.	0.61	2,301	1,735	4,036	8.35	56,203
4500.	325.	0	0.00	30.00	0.	0.65	2,421	1,849	4,271	9.00	60,473
4657.	157.	1	0.00	30.00	0.	0.31	1,184	0,893	2,078	9.31	62,551
4732.	75.	1	0.00	30.00	44.	0.15	0,971	0,427	1,398	9.46	63,949
4932.	200.	1	0.00	30.00	0.	0.40	1,509	1,138	2,647	9.86	66,596
4999.	67.	1	0.00	30.00	45.	0.13	0,868	0,381	1,249	10.00	67,845
5300.	301.	1	0.00	30.00	0.	0.60	2,270	1,713	3,983	10.60	71,828
5650.	350.	-4	0.00	30.00	0.	0.70	3,113	1,992	5,105	11.30	76,933
5800.	150.	2	0.00	29.94	0.	0.30	1,179	0,854	2,033	11.60	78,965
5900.	100.	-1	0.00	30.00	0.	0.20	0,754	0,569	1,323	11.80	80,289
5950.	50.	-1	0.00	30.00	0.	0.10	0,377	0,205	0,582	11.90	80,871
6500.	550.	1	0.00	30.00	0.	1.10	4,149	3,129	7,278	13.00	88,228
6850.	350.	0	0.00	30.00	0.	0.70	2,608	1,992	4,599	13.70	92,827
7350.	500.	2	0.00	30.00	0.	1.00	3,930	2,845	6,775	14.70	99,602
7547.	197.	2	0.00	30.00	0.	0.39	1,548	1,121	2,669	15.10	102,271
7600.	53.	2	0.00	30.00	50.	0.11	0,703	0,302	1,005	15.20	103,276
7632.	32.	-4	0.00	30.00	50.	0.06	0,458	0,182	0,640	15.27	103,916
7825.	193.	-4	0.00	30.00	0.	0.39	1,717	1,098	2,815	15.65	106,731
8050.	225.	2	0.00	30.00	0.	0.45	1,768	1,280	3,049	16.10	109,780
8300.	250.	-4	0.00	30.00	0.	0.50	2,224	1,423	3,646	16.60	113,426
8650.	350.	4	0.00	30.00	0.	0.70	3,113	1,992	5,105	17.30	118,531
8900.	250.	-2	0.00	30.00	0.	0.50	1,965	1,423	3,387	17.80	121,918
9000.	100.	1	0.00	30.00	0.	0.20	0,754	0,569	1,323	18.00	123,242
9300.	300.	-2	0.00	30.00	0.	0.60	2,358	1,707	4,065	18.60	127,307
9800.	500.	3	0.01	30.00	0.	1.00	4,137	2,845	6,982	19.60	134,289
9900.	100.	3	0.01	30.00	0.	0.20	0,827	0,569	1,396	19.80	135,685
10054.	154.	0	0.00	30.00	0.	0.31	1,147	0,876	2,024	20.11	137,709
10100.	46.	0	0.00	30.00	44.	0.09	0,592	0,262	0,853	20.20	138,563
10117.	17.	1	0.00	30.00	44.	0.03	0,220	0,097	0,317	20.24	138,880
10500.	383.	1	0.00	30.00	0.	0.77	2,889	2,179	5,068	21.00	143,947
10600.	100.	-4	0.00	30.00	0.	0.20	0,890	0,569	1,459	21.20	145,406
10850.	250.	0	0.00	30.00	0.	0.50	1,862	1,423	3,285	21.70	148,691
11000.	150.	-1	0.00	30.00	0.	0.30	1,131	0,854	1,985	22.00	150,676
11050.	50.	4	0.00	30.00	0.	0.10	0,445	0,205	0,650	22.10	151,326

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
11475.	425.	0	0.00	30.00	0.	0.85	3.166	2.418	5.585	22.95	156.989
11800.	325.	-2	0.00	30.00	0.	0.65	2.554	1.849	4.404	23.60	161.393
11825.	25.	0	0.00	30.00	0.	0.05	0.186	0.142	0.329	23.65	161.721
11876.	51.	0	0.00	30.00	39.	0.10	0.656	0.290	0.946	23.75	162.667
12350.	474.	0	0.00	30.00	0.	0.95	3.531	2.697	6.228	24.70	168.895
12525.	175.	1	0.00	30.00	0.	0.35	1.320	0.996	2.316	25.05	171.211
13300.	775.	-1	0.00	30.00	0.	1.55	5.846	4.410	10.256	26.60	181.467
13450.	150.	0	0.00	30.00	0.	0.30	1.118	0.854	1.971	26.90	183.438
13650.	200.	-3	0.00	30.00	0.	0.40	1.655	1.138	2.793	27.30	186.231
14150.	500.	0	0.00	30.00	0.	1.00	3.725	2.845	6.570	28.30	192.801
14334.	184.	2	0.00	30.00	0.	0.37	1.446	1.047	2.493	28.67	195.294
14394.	60.	2	0.00	30.00	39.	0.12	0.796	0.341	1.138	28.79	196.431
14500.	106.	2	0.00	30.00	0.	0.21	0.833	0.603	1.436	29.00	197.867
14650.	150.	-2	0.00	30.00	0.	0.30	1.179	0.854	2.032	29.30	199.900
14875.	225.	0	0.00	30.00	0.	0.45	1.676	1.280	2.957	29.75	202.856
15125.	250.	1	0.00	30.00	0.	0.50	1.886	1.423	3.309	30.25	206.165
15350.	225.	0	0.00	30.00	0.	0.45	1.676	1.280	2.957	30.70	209.121
15825.	475.	-2	0.00	30.00	0.	0.95	3.733	2.703	6.436	31.65	215.557
16050.	225.	0	0.00	30.00	0.	0.45	1.676	1.280	2.957	32.10	218.514
16125.	75.	-2	0.00	30.00	0.	0.15	0.589	0.427	1.016	32.25	219.530
16720.	595.	0	0.00	29.98	0.	1.19	4.433	3.383	7.816	33.44	227.349
16790.	70.	0	0.00	30.00	42.	0.14	0.900	0.398	1.298	33.58	228.647
17553.	763.	0	0.00	30.00	0.	1.55	5.784	4.341	10.124	35.11	238.773
17595.	42.	0	0.00	30.00	36.	0.08	0.540	0.239	0.779	35.19	239.452
17775.	180.	0	0.00	30.00	0.	0.36	1.341	1.024	2.365	35.55	241.817
18550.	775.	0	0.00	30.00	0.	1.55	5.774	4.410	10.184	37.10	252.001
18925.	375.	0	0.00	29.98	0.	0.75	2.794	2.134	4.928	37.85	256.928
19074.	149.	4	0.00	30.00	0.	0.30	1.325	0.848	2.173	38.15	259.101
19099.	25.	4	0.00	30.00	36.	0.05	0.358	0.142	0.500	38.20	259.601
19150.	51.	4	0.00	30.00	0.	0.10	0.454	0.290	0.744	38.30	260.345
19350.	200.	-1	0.00	30.00	0.	0.40	1.509	1.138	2.647	38.70	262.992
19676.	326.	1	0.00	30.00	0.	0.65	2.459	1.855	4.314	39.35	267.306
20600.	924.	-1	0.00	30.00	0.	1.85	6.970	5.258	12.227	41.20	279.533
20800.	200.	0	0.00	30.00	0.	0.40	1.490	1.138	2.628	41.60	282.161
21021.	221.	0	0.00	29.96	0.	0.44	1.647	1.257	2.904	42.05	285.065
21106.	85.	0	0.00	30.00	50.	0.17	1.093	0.484	1.577	42.22	286.642
21200.	94.	0	0.00	30.00	0.	0.19	0.700	0.535	1.235	42.40	287.877
21650.	450.	0	0.00	30.00	0.	0.90	3.353	2.560	5.913	43.30	293.790
21900.	250.	2	0.00	30.00	0.	0.50	1.965	1.423	3.387	43.80	297.177
22125.	225.	-2	0.00	30.00	0.	0.45	1.768	1.280	3.049	44.25	300.226
22197.	72.	-2	0.00	30.00	46.	0.14	0.955	0.410	1.365	44.40	301.591
22350.	153.	-2	0.00	30.00	0.	0.31	1.203	0.871	2.073	44.70	303.664
22500.	150.	0	0.00	30.00	0.	0.30	1.118	0.854	1.971	45.00	305.635
22900.	400.	0	0.00	30.00	0.	0.80	2.980	2.276	5.256	45.80	310.891
23274.	374.	2	0.00	30.00	0.	0.75	2.940	2.128	5.068	46.55	315.959
23325.	51.	2	0.00	30.00	39.	0.10	0.677	0.290	0.967	46.65	316.926
23375.	50.	2	0.00	30.00	0.	0.10	0.393	0.283	0.677	46.75	317.603
23675.	300.	0	0.00	30.00	0.	0.70	2.255	1.707	3.962	47.35	321.565
24075.	400.	-3	0.00	30.00	0.	0.80	3.309	2.276	5.585	48.15	327.151
24500.	425.	3	0.01	30.00	0.	0.85	3.516	2.418	5.934	49.00	333.085
24825.	325.	-2	0.00	30.00	0.	0.65	2.554	1.849	4.404	49.65	337.489
25225.	400.	3	0.01	30.00	0.	0.80	3.309	2.276	5.585	50.45	343.074
25650.	425.	-2	0.00	30.00	0.	0.85	3.340	2.418	5.759	51.30	348.832
25700.	50.	-2	0.00	30.00	39.	0.10	0.663	0.285	0.948	51.40	349.780
25701.	1.	2	0.00	30.00	39.	0.00	0.013	0.006	0.019	51.41	349.799
26017.	316.	2	0.00	30.00	0.	0.63	2.484	1.798	4.282	52.04	354.081
26059.	42.	2	0.00	30.00	36.	0.08	0.557	0.239	0.796	52.12	354.877

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
26250.	191.	2	0.00	30.00	0.	0.38	1.501	1.067	2.568	52.50	357.445
26500.	250.	-2	0.00	30.00	0.	0.50	1.965	1.423	3.387	53.00	360.833
26554.	54.	0	0.00	30.00	0.	0.11	0.402	0.307	0.710	53.11	361.542
26626.	72.	0	0.00	30.00	46.	0.14	0.926	0.410	1.336	53.26	362.878
26875.	249.	0	0.00	30.00	0.	0.50	1.855	1.417	3.272	53.75	366.150
27400.	525.	0	0.00	30.00	0.	1.05	3.911	2.987	6.899	54.80	373.048
27450.	50.	0	0.00	30.00	36.	0.10	0.243	0.265	0.927	54.90	373.976
27575.	125.	0	0.00	30.00	0.	0.25	0.931	0.711	1.643	55.15	375.618
28275.	700.	-1	0.00	30.00	0.	1.40	5.280	3.983	9.263	56.55	384.881
28554.	279.	0	0.00	30.00	0.	0.56	2.079	1.588	3.666	57.11	388.547
28596.	42.	0	0.00	30.00	36.	0.08	0.540	0.239	0.779	57.20	389.326
28600.	4.	0	0.00	30.00	0.	0.01	0.030	0.023	0.053	57.20	389.379
29050.	450.	-1	0.00	30.00	0.	0.90	3.394	2.520	5.915	58.10	395.334
29375.	325.	0	0.00	30.00	0.	0.65	2.421	1.849	4.271	58.75	399.604
29561.	186.	-1	0.00	30.00	0.	0.37	1.403	1.058	2.461	59.13	402.066

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 8/3/228

TIME : 13:37

ROUTE NO. 2200 EXISTING

CALCULATION OF AVERAGES FOR A HVY TRUCK
OR A VEHICLE CLASS 5

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOM
1982	30.03	59.06	233.61	168.017	401.623	13.586
1983	30.03	59.06	233.61	168.017	401.623	13.586
1984	30.03	59.06	233.61	168.017	401.623	13.586
1985	30.03	59.06	233.61	168.017	401.623	13.586
1986	30.03	59.06	233.61	168.017	401.623	13.586
1987	30.03	59.06	233.61	168.017	401.624	13.586
1988	30.03	59.06	233.61	168.017	401.624	13.586
1989	30.03	59.06	233.61	168.017	401.624	13.586
1990	30.03	59.06	233.61	168.017	401.624	13.586
1991	30.03	59.06	233.61	168.017	401.624	13.586
1992	30.03	59.06	233.61	168.017	401.624	13.586
1993	30.03	59.06	233.61	168.017	401.624	13.586
1994	30.03	59.06	233.61	168.017	401.624	13.586
1995	30.03	59.06	233.61	168.017	401.624	13.586
1996	30.03	59.06	233.61	168.017	401.624	13.586
1997	30.03	59.06	233.61	168.017	401.624	13.586
1998	30.03	59.06	233.61	168.017	401.624	13.586
1999	30.03	59.06	233.61	168.017	401.624	13.586
2000	30.03	59.06	233.61	168.017	401.624	13.586

ศูนย์วิทยพัชกร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 831228 TIME : 13:30

ROAD USER COST CALCULATION

ROUTE NO. 2200 -EXISTING

CALCULATION OVER THE YEAR 1982 FOR A LGT BUS
PEAK HISTOGRAM OR A VEHICLE CLASS 6

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
325.	325.	-1	0.00	20.00	0.	0.98	0.708	0.536	1.144	0.98	1.144
475.	150.	-1	0.00	20.00	0.	0.45	0.281	0.248	0.528	1.43	1.672
950.	475.	0	0.00	20.00	0.	1.43	0.888	0.784	1.672	2.85	3.344
1000.	50.	0	0.00	20.00	0.	0.15	0.094	0.083	0.176	3.00	3.520
1100.	100.	0	0.00	20.00	50.	0.30	0.221	0.165	0.386	3.30	3.906
1850.	750.	0	0.00	20.00	0.	2.25	1.403	1.237	2.640	5.55	6.546
2275.	425.	0	0.00	20.00	0.	1.28	0.795	0.701	1.496	6.83	8.042
2537.	262.	0	0.00	20.00	0.	0.79	0.490	0.432	0.922	7.61	8.964
2584.	47.	0	0.00	20.00	48.	0.14	0.104	0.078	0.182	7.75	9.146
3000.	416.	0	0.00	20.00	0.	1.25	0.778	0.686	1.464	9.00	10.610
3100.	100.	0	0.00	20.00	0.	0.30	0.187	0.165	0.352	9.30	10.962
3350.	250.	0	0.00	20.00	0.	0.75	0.468	0.413	0.880	10.05	11.842
3700.	350.	0	0.00	20.00	0.	1.05	0.655	0.578	1.232	11.10	13.074
3750.	50.	-1	0.00	20.00	0.	0.15	0.094	0.083	0.176	11.25	13.250
3870.	120.	-1	0.00	20.00	55.	0.36	0.254	0.198	0.452	11.61	13.702
4175.	305.	-1	0.00	20.00	0.	0.92	0.570	0.503	1.074	12.53	14.776
4500.	325.	0	0.00	20.00	0.	0.98	0.608	0.536	1.144	13.50	15.920
4657.	157.	1	0.00	20.00	0.	0.47	0.294	0.259	0.553	13.97	16.473
4732.	75.	1	0.00	20.00	44.	0.23	0.166	0.124	0.290	14.20	16.763
4932.	200.	1	0.00	20.00	0.	0.60	0.374	0.330	0.704	14.80	17.467
4999.	67.	1	0.00	20.00	45.	0.20	0.148	0.111	0.259	15.00	17.725
5300.	301.	1	0.00	20.00	0.	0.90	0.563	0.497	1.060	15.90	18.785
5650.	350.	-4	0.00	20.00	0.	1.05	0.677	0.578	1.255	16.95	20.040
5800.	150.	2	0.00	20.00	0.	0.45	0.282	0.248	0.529	17.40	20.569
5900.	100.	-1	0.00	20.00	0.	0.30	0.187	0.165	0.352	17.70	20.921
5950.	50.	-1	0.00	20.00	0.	0.15	0.094	0.083	0.176	17.85	21.097
6500.	550.	1	0.00	20.00	0.	1.65	1.028	0.908	1.936	19.50	23.033
6850.	350.	0	0.00	20.00	0.	1.05	0.655	0.578	1.232	20.55	24.265
7350.	500.	2	0.00	20.00	0.	1.50	0.939	0.825	1.764	22.05	26.029
7547.	197.	2	0.00	20.00	0.	0.59	0.370	0.325	0.695	22.64	26.724
7600.	53.	2	0.00	20.00	50.	0.16	0.118	0.087	0.205	22.80	26.929
7632.	32.	-4	0.00	20.00	50.	0.10	0.073	0.053	0.126	22.90	27.055
7825.	193.	-4	0.00	20.00	0.	0.58	0.373	0.318	0.692	23.48	27.747
8050.	225.	2	0.00	20.00	0.	0.67	0.423	0.371	0.794	24.15	28.541
8300.	250.	-4	0.00	20.00	0.	0.75	0.484	0.413	0.896	24.90	29.437
8650.	350.	4	0.00	20.00	0.	1.05	0.677	0.578	1.255	25.95	30.691
8900.	250.	-2	0.00	20.00	0.	0.75	0.470	0.413	0.882	26.70	31.573
9000.	100.	1	0.00	20.00	0.	0.30	0.187	0.165	0.352	27.00	31.925
9300.	300.	-2	0.00	20.00	0.	0.90	0.564	0.495	1.059	27.90	32.984
9800.	500.	3	0.01	20.00	0.	1.50	0.947	0.825	1.772	29.40	34.756
9900.	100.	3	0.01	20.00	0.	0.30	0.189	0.165	0.354	29.70	35.110
10054.	154.	0	0.00	20.00	0.	0.46	0.288	0.254	0.542	30.16	35.652
10100.	46.	0	0.00	20.00	44.	0.14	0.102	0.076	0.178	30.30	35.830
10117.	17.	1	0.00	20.00	44.	0.05	0.038	0.028	0.066	30.35	35.895
10500.	383.	1	0.00	20.00	0.	1.35	0.716	0.632	1.348	31.50	37.244
10600.	100.	-4	0.00	20.00	0.	0.30	0.193	0.165	0.358	31.80	37.602
10850.	250.	0	0.00	20.00	0.	0.75	0.468	0.413	0.880	32.55	38.482
11000.	150.	-1	0.00	20.00	0.	0.45	0.281	0.248	0.528	33.00	39.010
11050.	50.	4	0.00	20.00	0.	0.15	0.097	0.083	0.179	33.15	39.189

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
11475.	425.	0	0.00	20.00	0.	1.28	0.795	0.701	1.496	34.43	40.685
11800.	325.	-2	0.00	20.00	0.	0.98	0.610	0.536	1.147	35.40	41.832
11825.	25.	0	0.00	20.00	0.	0.07	0.047	0.041	0.088	35.48	41.920
11876.	51.	0	0.00	20.00	39.	0.15	0.113	0.084	0.197	35.63	42.117
12350.	474.	0	0.00	20.00	0.	1.42	0.886	0.782	1.668	37.05	43.785
12525.	175.	1	0.00	20.00	0.	0.53	0.327	0.289	0.616	37.58	44.401
13300.	775.	-1	0.00	20.00	0.	2.33	1.449	1.279	2.728	39.90	47.129
13450.	150.	0	0.00	20.00	0.	0.45	0.281	0.248	0.529	40.35	47.657
13650.	200.	-3	0.00	20.00	0.	0.60	0.379	0.330	0.709	40.95	48.366
14150.	500.	0	0.00	20.00	0.	1.50	0.935	0.825	1.760	42.45	50.126
14334.	184.	2	0.00	20.00	0.	0.55	0.346	0.304	0.649	43.00	50.775
14394.	60.	2	0.00	20.00	39.	0.18	0.133	0.099	0.232	43.18	51.008
14500.	106.	2	0.00	20.00	0.	0.32	0.199	0.175	0.374	43.50	51.382
14650.	150.	-2	0.00	20.00	0.	0.45	0.282	0.248	0.529	43.95	51.911
14875.	225.	0	0.00	20.00	0.	0.67	0.421	0.371	0.792	44.63	52.703
15125.	250.	1	0.00	20.00	0.	0.75	0.468	0.413	0.880	45.38	53.583
15350.	225.	0	0.00	20.00	0.	0.67	0.421	0.371	0.792	46.05	54.375
15825.	475.	-2	0.00	20.00	0.	1.43	0.892	0.784	1.676	47.48	56.051
16050.	225.	0	0.00	20.00	0.	0.67	0.421	0.371	0.792	48.15	56.843
16125.	75.	-2	0.00	20.00	0.	0.23	0.141	0.124	0.265	48.38	57.107
16720.	595.	0	0.00	20.00	0.	1.79	1.113	0.982	2.094	50.16	59.202
16790.	70.	0	0.00	20.00	42.	0.21	0.155	0.116	0.270	50.37	59.472
17553.	763.	0	0.00	20.00	0.	2.29	1.427	1.259	2.686	52.66	62.158
17595.	42.	0	0.00	20.00	36.	0.13	0.093	0.069	0.162	52.79	62.320
17775.	180.	0	0.00	20.00	0.	0.54	0.357	0.297	0.654	52.93	62.974
18550.	775.	0	0.00	20.00	0.	2.33	1.449	1.279	2.728	55.65	65.702
18925.	375.	0	0.00	20.00	0.	1.13	0.701	0.619	1.320	56.78	67.022
19074.	149.	4	0.00	20.00	0.	0.45	0.288	0.246	0.534	57.22	67.556
19099.	25.	4	0.00	20.00	36.	0.07	0.057	0.041	0.098	57.30	67.654
19150.	51.	4	0.00	20.00	0.	0.15	0.099	0.084	0.183	57.45	67.837
19350.	200.	-1	0.00	20.00	0.	0.60	0.374	0.330	0.704	58.05	68.541
19676.	326.	1	0.00	20.00	0.	0.98	0.610	0.538	1.148	59.03	69.689
20600.	924.	-1	0.00	20.00	0.	2.77	1.728	1.525	3.252	61.80	72.941
20800.	200.	0	0.00	20.00	0.	0.60	0.374	0.330	0.704	62.40	73.645
21021.	221.	0	0.00	20.00	0.	0.66	0.413	0.365	0.778	63.06	74.423
21106.	85.	0	0.00	20.00	50.	0.26	0.188	0.140	0.328	63.32	74.751
21200.	94.	0	0.00	20.00	0.	0.28	0.176	0.155	0.331	63.60	75.082
21650.	450.	0	0.00	20.00	0.	1.35	0.842	0.743	1.584	64.95	76.666
21900.	250.	2	0.00	20.00	0.	0.75	0.470	0.413	0.882	65.70	77.548
22125.	225.	-2	0.00	20.00	0.	0.67	0.423	0.371	0.794	66.37	78.342
22197.	72.	-2	0.00	20.00	46.	0.22	0.160	0.119	0.279	66.59	78.621
22350.	153.	-2	0.00	20.00	0.	0.44	0.287	0.252	0.540	67.05	79.161
22500.	150.	0	0.00	20.00	0.	0.45	0.281	0.248	0.528	67.50	79.689
22900.	400.	0	0.00	20.00	0.	1.20	0.748	0.660	1.408	68.70	81.096
23274.	374.	2	0.00	20.00	0.	1.12	0.703	0.617	1.320	69.82	82.416
23325.	51.	2	0.00	20.00	39.	0.15	0.113	0.084	0.197	69.97	82.613
23375.	50.	2	0.00	20.00	0.	0.15	0.094	0.083	0.176	70.12	82.789
23675.	300.	0	0.00	20.00	0.	0.90	0.561	0.495	1.056	71.03	83.845
24075.	400.	-3	0.00	20.00	0.	1.20	0.757	0.660	1.417	72.22	85.262
24500.	425.	3	0.01	20.00	0.	1.28	0.885	0.781	1.666	73.50	86.928
24825.	325.	-2	0.00	20.00	0.	0.98	0.610	0.536	1.147	74.47	88.075
25225.	400.	3	0.01	20.00	0.	1.20	0.757	0.660	1.417	75.67	89.492
25650.	425.	-2	0.00	20.00	0.	1.28	0.798	0.701	1.500	76.95	91.013
25700.	50.	-2	0.00	20.00	39.	0.15	0.111	0.083	0.194	77.10	91.207
25701.	1.	2	0.00	20.00	39.	0.00	0.002	0.002	0.004	77.10	91.211
26017.	316.	2	0.00	20.00	0.	0.95	0.594	0.521	1.115	78.05	92.326
26059.	42.	2	0.00	20.00	36.	0.13	0.093	0.069	0.163	78.18	92.489

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
26250.	191.	2	0.00	20.00	0.	0.57	0.359	0.315	0.674	78.75	92.962
26500.	250.	-2	0.00	20.00	0.	0.75	0.470	0.413	0.882	79.50	93.844
26554.	54.	0	0.00	20.00	0.	0.16	0.101	0.089	0.190	79.66	94.034
26626.	72.	0	0.00	20.00	46.	0.22	0.159	0.119	0.278	79.88	94.312
26875.	249.	0	0.00	20.00	0.	0.75	0.466	0.411	0.876	80.62	95.189
27400.	525.	0	0.00	20.00	0.	1.58	0.982	0.866	1.848	82.20	97.037
27450.	50.	0	0.00	20.00	36.	0.15	0.111	0.083	0.193	82.35	97.230
27575.	125.	0	0.00	20.00	0.	0.38	0.234	0.206	0.440	82.73	97.670
28275.	700.	-1	0.00	20.00	0.	2.10	1.309	1.155	2.464	84.82	100.134
28554.	279.	0	0.00	20.00	0.	0.84	0.522	0.460	0.982	85.66	101.116
28596.	42.	0	0.00	20.00	36.	0.13	0.093	0.069	0.162	85.79	101.278
28600.	4.	0	0.00	20.00	0.	0.01	0.007	0.007	0.014	85.80	101.292
29050.	450.	-1	0.00	20.00	0.	1.35	0.842	0.743	1.584	87.15	102.876
29375.	325.	0	0.00	20.00	0.	0.98	0.608	0.536	1.144	88.12	104.020
29561.	186.	-1	0.00	20.00	0.	0.56	0.348	0.307	0.655	88.68	104.675

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ROUTE NO. 2200 EXISTING

DATE : 8/31/28

TIME : 13:41

CALCULATION OF AVERAGES FOR A LGT BUS OR A VEHICLE CLASS 6

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KMTR
1982	20.02	88.59	55.84	48.722	104.560	3.537
1983	20.02	88.59	55.84	48.722	104.560	3.537
1984	20.02	88.59	55.84	48.722	104.560	3.537
1985	20.02	88.59	55.84	48.722	104.560	3.537
1986	20.02	88.59	55.84	48.722	104.560	3.537
1987	20.02	88.59	55.84	48.722	104.560	3.537
1988	20.02	88.59	55.84	48.722	104.560	3.537
1989	20.02	88.59	55.84	48.722	104.560	3.537
1990	20.02	88.59	55.84	48.722	104.560	3.537
1991	20.02	88.59	55.84	48.722	104.560	3.537
1992	20.02	88.59	55.84	48.722	104.560	3.537
1993	20.02	88.59	55.84	48.722	104.560	3.537
1994	20.02	88.59	55.84	48.722	104.560	3.537
1995	20.02	88.59	55.84	48.722	104.560	3.537
1996	20.02	88.59	55.84	48.722	104.560	3.537
1997	20.02	88.59	55.84	48.722	104.560	3.537
1998	20.02	88.59	55.84	48.722	104.560	3.537
1999	20.02	88.59	55.84	48.722	104.560	3.537
2000	20.02	88.59	55.84	48.722	104.560	3.537

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 831228 TIME : 13141

ROAD USER COST CALCULATION

ROUTE NO. 2200 EXISTING

CALCULATION OVER THE YEAR 1982 FOR A MED BUS
PEAK HISTOGRAM

OR A VEHICLE CLASS 7

CHAINAGE	INTERIM DISTANCE	GRADE (X)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
325.	325.	-1	0.00	20.00	0.	0.99	1.095	0.926	2.021	0.99	2.021
475.	150.	-1	0.00	20.00	0.	0.45	0.505	0.428	0.933	1.43	2.954
950.	475.	0	0.00	20.00	0.	1.43	1.610	1.354	2.964	2.88	5.918
1000.	50.	0	0.00	20.00	0.	0.15	0.169	0.142	0.312	3.00	6.230
1100.	100.	0	0.00	20.00	50.	0.30	0.426	0.285	0.711	3.30	6.941
1850.	750.	0	0.00	20.00	0.	2.25	2.543	2.138	4.680	5.55	11.621
2275.	425.	0	0.00	20.00	0.	1.28	1.441	1.211	2.652	6.83	14.273
2537.	262.	0	0.00	20.00	0.	0.79	0.888	0.747	1.635	7.61	15.908
2584.	47.	0	0.00	20.00	48.	0.14	0.200	0.134	0.334	7.75	16.242
3000.	416.	0	0.00	20.00	0.	1.25	1.410	1.186	2.596	9.00	18.838
3100.	100.	0	0.00	20.00	0.	0.30	0.339	0.265	0.604	9.30	19.462
3350.	250.	0	0.00	20.00	0.	0.75	0.847	0.713	1.560	10.05	21.022
3700.	350.	0	0.00	20.00	0.	1.05	1.186	0.998	2.184	11.10	23.206
3750.	50.	-1	0.00	20.00	0.	0.15	0.168	0.142	0.311	11.25	23.517
3870.	120.	-1	0.00	20.00	55.	0.36	0.480	0.342	0.822	11.61	24.339
4175.	305.	-1	0.00	20.00	0.	0.92	1.027	0.869	1.896	12.53	26.235
4500.	325.	0	0.00	20.00	0.	0.98	1.102	0.926	2.028	13.50	28.263
4657.	157.	1	0.00	20.00	0.	0.47	0.529	0.447	0.976	13.97	29.240
4732.	75.	1	0.00	20.00	44.	0.23	0.318	0.214	0.532	14.20	29.771
4932.	200.	1	0.00	20.00	0.	0.60	0.674	0.570	1.244	14.80	31.015
4999.	67.	1	0.00	20.00	45.	0.20	0.284	0.191	0.475	15.00	31.490
5300.	301.	1	0.00	20.00	0.	0.90	1.014	0.858	1.872	15.90	33.362
5650.	350.	-4	0.00	20.00	0.	1.05	1.211	0.998	2.208	16.95	35.570
5800.	150.	2	0.00	20.00	0.	0.45	0.506	0.428	0.934	17.40	36.504
5900.	100.	-1	0.00	20.00	0.	0.30	0.337	0.285	0.622	17.70	37.126
5950.	50.	-1	0.00	20.00	0.	0.15	0.168	0.142	0.311	17.85	37.437
6500.	550.	1	0.00	20.00	0.	1.65	1.852	1.568	3.420	19.50	40.857
6850.	350.	0	0.00	20.00	0.	1.05	1.186	0.998	2.184	20.55	43.041
7350.	500.	2	0.00	20.00	0.	1.50	1.688	1.425	3.113	22.05	46.154
7547.	197.	2	0.00	20.00	0.	0.59	0.665	0.561	1.227	22.64	47.381
7600.	53.	2	0.00	20.00	50.	0.16	0.225	0.151	0.376	22.80	47.757
7632.	32.	-4	0.00	20.00	50.	0.107	0.139	0.091	0.230	22.90	47.987
7825.	193.	-4	0.00	20.00	0.	0.58	0.668	0.560	1.218	23.48	49.206
8050.	225.	2	0.00	20.00	0.	0.67	0.760	0.641	1.401	24.15	50.606
8300.	250.	-4	0.00	20.00	0.	0.75	0.865	0.713	1.577	24.90	52.183
8650.	350.	4	0.00	20.00	0.	1.05	1.211	0.998	2.208	25.95	54.391
8900.	250.	-2	0.00	20.00	0.	0.75	0.844	0.713	1.557	26.70	55.948
9000.	100.	1	0.00	20.00	0.	0.30	0.337	0.285	0.622	27.00	56.570
9300.	300.	-2	0.00	20.00	0.	0.90	1.013	0.855	1.868	27.90	58.438
9800.	500.	3	0.01	20.00	0.	1.50	1.702	1.425	3.127	29.40	61.564
9900.	100.	3	0.01	20.00	0.	0.30	0.340	0.285	0.625	29.70	62.190
10054.	154.	0	0.00	20.00	0.	0.46	0.522	0.439	0.961	30.16	63.151
10100.	46.	0	0.00	20.00	44.	0.14	0.196	0.131	0.327	30.30	63.478
10117.	17.	1	0.00	20.00	44.	0.05	0.072	0.048	0.121	30.35	63.599
10500.	383.	1	0.00	20.00	0.	1.15	1.290	1.092	2.381	31.50	65.980
10600.	100.	-4	0.00	20.00	0.	0.30	0.346	0.285	0.631	31.80	66.611
10850.	250.	0	0.00	20.00	0.	0.75	0.847	0.713	1.560	32.55	68.171
11000.	150.	-1	0.00	20.00	0.	0.45	0.505	0.428	0.933	33.00	69.104
11050.	50.	4	0.00	20.00	0.	0.15	0.173	0.142	0.315	33.15	69.419

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
11475.	425.	0	0.00	20.00	0.	1.28	1.441	1.211	2.652	34.43	72,071
11800.	325.	-2	0.00	20.00	0.	0.98	1.097	0.926	2.024	35.40	74,095
11825.	25.	0	0.00	20.00	0.	0.07	0.065	0.071	0.156	35.48	74,251
11876.	51.	0	0.00	20.00	39.	0.15	0.217	0.145	0.363	35.63	74,614
12350.	474.	0	0.00	20.00	0.	1.42	1.607	1.351	2.958	37.05	77,571
12525.	175.	1	0.00	20.00	0.	0.53	0.589	0.499	1.088	37.58	78,659
13300.	775.	-1	0.00	20.00	0.	2.33	2.610	2.209	4.819	39.90	83,478
13450.	150.	0	0.00	20.00	0.	0.45	0.509	0.428	0.936	40.35	84,414
13650.	200.	-3	0.00	20.00	0.	0.60	0.681	0.570	1.251	40.95	85,665
14150.	500.	0	0.00	20.00	0.	1.50	1.695	1.425	3.120	42.45	88,785
14334.	184.	2	0.00	20.00	0.	0.85	0.621	0.524	1.146	43.00	89,931
14394.	60.	2	0.00	20.00	39.	0.18	0.255	0.171	0.426	43.18	90,357
14500.	106.	2	0.00	20.00	0.	0.32	0.358	0.302	0.660	43.50	91,017
14650.	150.	-2	0.00	20.00	0.	0.45	0.506	0.428	0.934	43.95	91,951
14875.	225.	0	0.00	20.00	0.	0.67	0.763	0.641	1.404	44.63	93,355
15125.	250.	1	0.00	20.00	0.	0.75	0.842	0.713	1.554	45.38	94,909
15350.	225.	0	0.00	20.00	0.	0.67	0.763	0.641	1.404	46.05	96,313
15825.	475.	-2	0.00	20.00	0.	1.43	1.604	1.354	2.958	47.48	99,271
16050.	225.	0	0.00	20.00	0.	0.67	0.763	0.641	1.404	48.15	100,675
16125.	75.	-2	0.00	20.00	0.	0.23	0.253	0.214	0.467	48.38	101,142
16720.	595.	0	0.00	20.00	0.	1.79	2.017	1.696	3.713	50.16	104,855
16790.	70.	0	0.00	20.00	42.	0.21	0.299	0.200	0.498	50.37	105,353
17553.	763.	0	0.00	20.00	0.	2.29	2.587	2.175	4.761	52.66	110,114
17595.	42.	0	0.00	20.00	36.	0.13	0.179	0.120	0.299	52.79	110,413
17775.	180.	0	0.00	20.00	0.	0.54	0.610	0.513	1.123	53.33	111,536
18550.	775.	0	0.00	20.00	0.	2.33	2.627	2.209	4.836	55.65	116,372
18925.	375.	0	0.00	20.00	0.	1.13	1.271	1.069	2.340	56.78	118,712
19074.	149.	4	0.00	20.00	0.	0.45	0.515	0.425	0.940	57.22	119,652
19099.	25.	4	0.00	20.00	36.	0.07	0.108	0.071	0.180	57.30	119,832
19150.	51.	4	0.00	20.00	0.	0.15	0.176	0.145	0.322	57.45	120,153
19350.	200.	-1	0.00	20.00	0.	0.60	0.674	0.570	1.244	58.05	121,397
19676.	326.	1	0.00	20.00	0.	0.98	1.098	0.929	2.027	59.03	123,424
20600.	924.	-1	0.00	20.00	0.	2.77	3.112	2.633	5.745	61.80	129,169
20800.	200.	0	0.00	20.00	0.	0.60	0.678	0.570	1.248	62.40	130,417
21021.	221.	0	0.00	20.00	0.	0.66	0.749	0.630	1.379	63.06	131,796
21106.	85.	0	0.00	20.00	50.	0.26	0.362	0.242	0.605	63.32	132,401
21200.	94.	0	0.00	20.00	0.	0.28	0.319	0.268	0.587	63.60	132,988
21650.	450.	0	0.00	20.00	0.	1.35	1.525	1.283	2.808	64.95	135,796
21900.	250.	2	0.00	20.00	0.	0.75	0.844	0.713	1.557	65.70	137,352
22125.	225.	-2	0.00	20.00	0.	0.67	0.760	0.641	1.401	66.37	138,753
22197.	72.	-2	0.00	20.00	46.	0.22	0.306	0.205	0.511	66.59	139,265
22350.	153.	-2	0.00	20.00	0.	0.46	0.517	0.436	0.953	67.05	140,217
22500.	150.	0	0.00	20.00	0.	0.45	0.509	0.428	0.936	67.50	141,153
22900.	400.	0	0.00	20.00	0.	1.20	1.356	1.140	2.496	68.70	143,649
23274.	374.	2	0.00	20.00	0.	1.12	1.263	1.066	2.329	69.82	145,978
23325.	51.	2	0.00	20.00	39.	0.15	0.217	0.145	0.362	69.97	146,340
23375.	50.	2	0.00	20.00	0.	0.15	0.169	0.142	0.311	70.12	146,651
23675.	300.	0	0.00	20.00	0.	0.90	1.017	0.855	1.872	71.03	148,523
24075.	400.	-3	0.00	20.00	0.	1.20	1.361	1.140	2.501	72.22	151,025
24500.	425.	3	0.01	20.00	0.	1.28	1.447	1.211	2.658	73.50	153,683
24825.	325.	-2	0.00	20.00	0.	0.98	1.097	0.926	2.024	74.47	155,706
25225.	400.	3	0.01	20.00	0.	1.20	1.361	1.140	2.501	75.67	158,208
25650.	425.	-2	0.00	20.00	0.	1.28	1.435	1.211	2.646	76.95	160,854
25700.	50.	-2	0.00	20.00	39.	0.15	0.213	0.142	0.355	77.10	161,209
25701.	1.	2	0.00	20.00	39.	0.00	0.004	0.003	0.007	77.10	161,216
26017.	316.	2	0.00	20.00	0.	0.95	1.067	0.901	1.968	78.05	163,184
26059.	42.	2	0.00	20.00	36.	0.13	0.179	0.120	0.298	78.18	163,482

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
26250.	191.	2	0.00	20.00	0.	0.57	0.645	0.544	1.189	78.75	164.671
26500.	250.	-2	0.00	20.00	0.	0.75	0.644	0.713	1.357	79.50	166.228
26554.	54.	0	0.00	20.00	0.	0.16	0.183	0.154	0.337	79.66	166.565
26626.	72.	0	0.00	20.00	46.	0.22	0.307	0.205	0.512	79.88	167.077
26875.	249.	0	0.00	20.00	0.	0.75	0.844	0.710	1.554	80.62	168.631
27400.	525.	0	0.00	20.00	0.	1.58	1.780	1.496	3.276	82.20	171.907
27450.	50.	0	0.00	20.00	36.	0.15	0.213	0.142	0.356	82.35	172.262
27575.	125.	0	0.00	20.00	0.	0.38	0.424	0.356	0.780	82.73	173.042
28275.	700.	-1	0.00	20.00	0.	2.10	2.358	1.995	4.353	84.82	177.395
28554.	279.	0	0.00	20.00	0.	0.84	0.946	0.795	1.741	85.66	179.136
28596.	42.	0	0.00	20.00	36.	0.13	0.179	0.120	0.299	85.79	179.435
28600.	4.	0	0.00	20.00	0.	0.01	0.014	0.011	0.025	85.80	179.460
29050.	450.	-1	0.00	20.00	0.	1.35	1.516	1.283	2.799	87.15	182.258
29375.	325.	0	0.00	20.00	0.	0.98	1.102	0.926	2.028	88.12	184.286
29561.	186.	-1	0.00	20.00	0.	0.56	0.626	0.530	1.157	88.68	185.442

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 831228

TIME : 13145

ROUTE NO. 2200 EXISTING

CALCULATION OF AVERAGES FOR A NED BUS OR A VEHICLE CLASS 7

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOM
1982	20.02	88.59	101.08	84.156	185.238	6.266
1983	20.02	88.59	101.08	84.156	185.238	6.266
1984	20.02	88.59	101.08	84.156	185.238	6.266
1985	20.02	88.59	101.08	84.156	185.238	6.266
1986	20.02	88.59	101.08	84.156	185.238	6.266
1987	20.02	88.59	101.08	84.156	185.238	6.266
1988	20.02	88.59	101.08	84.156	185.238	6.266
1989	20.02	88.59	101.08	84.156	185.238	6.266
1990	20.02	88.59	101.08	84.156	185.238	6.266
1991	20.02	88.59	101.08	84.156	185.238	6.266
1992	20.02	88.59	101.08	84.156	185.238	6.266
1993	20.02	88.59	101.08	84.156	185.238	6.266
1994	20.02	88.59	101.08	84.156	185.238	6.266
1995	20.02	88.59	101.08	84.156	185.238	6.266
1996	20.02	88.59	101.08	84.156	185.238	6.266
1997	20.02	88.59	101.08	84.156	185.238	6.266
1998	20.02	88.59	101.08	84.156	185.238	6.266
1999	20.02	88.59	101.08	84.156	185.238	6.266
2000	20.02	88.59	101.08	84.156	185.238	6.266

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ROUTE NO. 2200 EXISTING

VEHICLE OPERATING COSTS FOR LINK

VEHICLE TYPE	YEAR	SPEED (KPH)	TIME (MINS)	RUNNING COST (B)	FIXED COST (B)	TOTAL (B)
MOTOR CYCLE	1982	30.03	59.06	11.68	8.27	19.95
	1985	30.03	59.06	11.68	8.27	19.95
	1988	30.03	59.06	11.68	8.27	19.95
	1991	30.03	59.06	11.68	8.27	19.95
	1994	30.03	59.06	11.68	8.27	19.95
	1997	30.03	59.06	11.68	8.27	19.95
	2000	30.03	59.06	11.68	8.27	19.95
PASSNGER CAR	1982	30.03	59.06	38.05	57.29	95.33
	1985	30.03	59.06	38.05	57.29	95.33
	1988	30.03	59.06	38.05	57.29	95.33
	1991	30.03	59.06	38.05	57.29	95.33
	1994	30.03	59.06	38.05	57.29	95.33
	1997	30.03	59.06	38.05	57.29	95.33
	2000	30.03	59.06	38.05	57.29	95.33
LIGHT TRUCK	1982	30.03	59.06	52.25	31.60	83.85
	1985	30.03	59.06	52.25	31.60	83.85
	1988	30.03	59.06	52.25	31.60	83.85
	1991	30.03	59.06	52.25	31.60	83.85
	1994	30.03	59.06	52.25	31.60	83.85
	1997	30.03	59.06	52.25	31.60	83.85
	2000	30.03	59.06	52.25	31.60	83.85
MED TRUCK	1982	30.03	59.06	135.66	130.52	266.18
	1985	30.03	59.06	135.66	130.52	266.18
	1988	30.03	59.06	135.66	130.52	266.18
	1991	30.03	59.06	135.66	130.52	266.18
	1994	30.03	59.06	135.66	130.52	266.18
	1997	30.03	59.06	135.66	130.52	266.18
	2000	30.03	59.06	135.66	130.52	266.18
HVY TRUCK	1982	30.03	59.06	233.61	168.02	401.62
	1985	30.03	59.06	233.61	168.02	401.62
	1988	30.03	59.06	233.61	168.02	401.62
	1991	30.03	59.06	233.61	168.02	401.62
	1994	30.03	59.06	233.61	168.02	401.62
	1997	30.03	59.06	233.61	168.02	401.62
	2000	30.03	59.06	233.61	168.02	401.62
LGT BUS	1982	20.02	88.59	55.84	48.72	104.56
	1985	20.02	88.59	55.84	48.72	104.56
	1988	20.02	88.59	55.84	48.72	104.56
	1991	20.02	88.59	55.84	48.72	104.56
	1994	20.02	88.59	55.84	48.72	104.56
	1997	20.02	88.59	55.84	48.72	104.56
	2000	20.02	88.59	55.84	48.72	104.56

MED. BUS

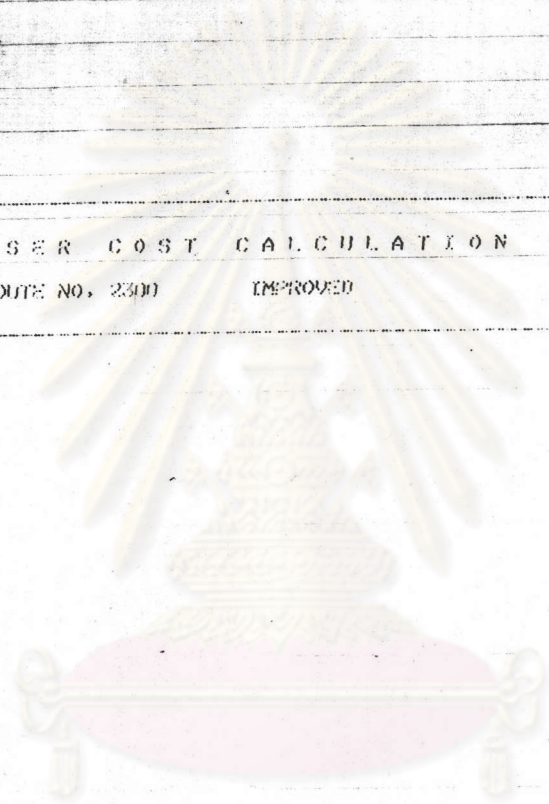
1982	20.02	88.59	101.08	84.16	185.24
1985	20.02	88.59	101.08	84.16	185.24
1988	20.02	88.59	101.08	84.16	185.24
1991	20.02	88.59	101.08	84.16	185.24
1994	20.02	88.59	101.08	84.16	185.24
1997	20.02	88.59	101.08	84.16	185.24
2000	20.02	88.59	101.08	84.16	185.24



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ROAD USER COST CALCULATION

ROUTE NO. 2300 IMPROVED



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ROAD USER COST CALCULATION

ROUTE NO. 2300 IMPROVED

CALCULATION OVER THE YEAR 1982 FOR A MOTOR CYCLE OR A VEHICLE CLASS 1
PEAK HISTOGRAM

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
175.	175.	-1	0.01	50.00	0.	0.21	0.053	0.042	0.095	0.21	0.095
575.	400.	0	0.01	50.00	0.	0.48	0.120	0.096	0.216	0.69	0.311
800.	225.	0	0.01	50.00	0.	0.27	0.068	0.054	0.122	0.96	0.432
950.	150.	-2	0.01	50.00	0.	0.18	0.045	0.036	0.081	1.14	0.514
1950.	1000.	0	0.01	50.00	0.	1.20	0.300	0.240	0.540	2.34	1.054
2150.	200.	0	0.01	50.00	0.	0.24	0.060	0.048	0.108	2.58	1.162
2625.	475.	0	0.01	50.00	0.	0.57	0.142	0.114	0.257	3.15	1.418
2900.	275.	0	0.01	50.00	0.	0.33	0.083	0.066	0.148	3.48	1.567
3725.	825.	0	0.01	50.00	0.	0.99	0.248	0.198	0.446	4.47	2.012
4780.	1055.	0	0.01	50.00	0.	1.27	0.317	0.253	0.570	5.74	2.582
4900.	120.	0	0.01	50.00	87.	0.14	0.042	0.029	0.070	5.88	2.652
5080.	180.	3	0.01	50.00	87.	0.22	0.064	0.043	0.107	6.10	2.759
5300.	220.	3	0.02	50.00	0.	0.26	0.067	0.053	0.120	6.36	2.879
5675.	375.	-3	0.01	50.00	0.	0.45	0.115	0.090	0.205	6.81	3.083
5800.	125.	2	0.01	50.00	0.	0.15	0.038	0.030	0.068	6.96	3.151
6125.	325.	0	0.01	50.00	0.	0.39	0.098	0.078	0.176	7.35	3.327
6500.	375.	2	0.01	50.00	0.	0.45	0.114	0.090	0.204	7.80	3.530
7275.	775.	1	0.01	50.00	0.	0.93	0.233	0.186	0.419	8.73	3.950
7625.	350.	1	0.01	50.00	0.	0.42	0.105	0.084	0.189	9.15	4.139
7825.	200.	-4	0.01	50.00	0.	0.24	0.062	0.048	0.110	9.39	4.249
8050.	225.	2	0.01	50.00	0.	0.27	0.068	0.054	0.122	9.66	4.371
8300.	250.	-4	0.01	50.00	0.	0.30	0.077	0.060	0.137	9.96	4.508
8450.	150.	4	0.01	50.00	0.	0.18	0.046	0.036	0.082	10.14	4.591
8650.	200.	3	0.01	50.00	0.	0.24	0.061	0.048	0.109	10.38	4.700
8900.	250.	-1	0.01	50.00	0.	0.30	0.075	0.060	0.135	10.68	4.835
9075.	175.	0	0.01	50.00	0.	0.21	0.053	0.042	0.095	10.89	4.930
9300.	225.	-3	0.01	50.00	0.	0.27	0.069	0.054	0.123	11.16	5.052
9475.	175.	4	0.01	50.00	0.	0.21	0.054	0.042	0.096	11.37	5.148
9825.	350.	2	0.01	50.00	0.	0.42	0.106	0.084	0.190	11.79	5.338
10175.	350.	0	0.01	50.00	0.	0.42	0.105	0.084	0.189	12.21	5.527
10500.	325.	2	0.01	50.00	0.	0.39	0.098	0.078	0.176	12.60	5.704
10625.	125.	-3	0.01	50.00	0.	0.15	0.038	0.030	0.068	12.75	5.772
10875.	250.	0	0.01	50.00	0.	0.30	0.075	0.060	0.135	13.05	5.907
11050.	175.	-1	0.01	50.00	0.	0.21	0.053	0.042	0.095	13.26	6.002
11300.	250.	1	0.01	50.00	0.	0.20	0.075	0.060	0.135	13.56	6.137
11525.	225.	0	0.01	50.00	0.	0.27	0.068	0.054	0.122	13.83	6.258
11800.	275.	-2	0.01	50.00	0.	0.33	0.083	0.066	0.149	14.16	6.408
12298.	498.	0	0.01	50.00	0.	0.60	0.149	0.120	0.269	14.76	6.677
12555.	257.	0	0.01	50.00	95.	0.31	0.086	0.062	0.148	15.07	6.825
12600.	45.	0	0.01	50.00	0.	0.05	0.014	0.011	0.024	15.12	6.849
12900.	300.	-2	0.01	50.00	0.	0.36	0.091	0.072	0.163	15.48	7.012
13300.	400.	-1	0.01	50.00	0.	0.48	0.120	0.096	0.216	15.96	7.228
13650.	350.	-1	0.01	50.00	0.	0.42	0.105	0.084	0.189	16.38	7.417
14475.	825.	1	0.01	50.00	0.	0.99	0.248	0.198	0.446	17.37	7.863
14490.	15.	0	0.01	50.00	0.	0.02	0.005	0.004	0.008	17.39	7.872
14694.	204.	0	0.01	50.00	95.	0.24	0.068	0.049	0.117	17.63	7.989
14875.	181.	0	0.01	50.00	0.	0.22	0.054	0.043	0.098	17.85	8.087
15125.	250.	1	0.01	50.00	0.	0.30	0.075	0.060	0.135	18.15	8.222
15600.	475.	-1	0.01	50.00	0.	0.57	0.143	0.114	0.257	18.72	8.479

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
15825.	225.	-2	0.01	50.00	0.	0.27	0.068	0.054	0.122	18.99	8.601
16225.	400.	-1	0.01	50.00	0.	0.48	0.120	0.096	0.216	19.47	8.817
17456.	1231.	0	0.01	50.00	0.	1.48	0.369	0.295	0.665	20.95	9.482
17552.	96.	0	0.01	50.00	110.	0.12	0.030	0.023	0.053	21.06	9.535
17775.	223.	0	0.01	50.00	0.	0.27	0.067	0.054	0.120	21.33	9.656
18550.	775.	0	0.01	50.00	0.	0.93	0.233	0.186	0.419	22.26	10.074
19098.	548.	1	0.01	50.00	0.	0.66	0.165	0.132	0.297	22.92	10.371
19150.	52.	1	0.01	50.00	72.	0.06	0.020	0.012	0.032	22.98	10.403
19186.	36.	-1	0.01	50.00	72.	0.04	0.014	0.009	0.022	23.02	10.426
19350.	164.	-1	0.01	50.00	0.	0.20	0.049	0.039	0.089	23.22	10.514
19620.	270.	1	0.01	50.00	0.	0.32	0.081	0.065	0.146	23.54	10.660
19675.	55.	1	0.01	50.00	110.	0.07	0.017	0.013	0.031	23.61	10.691
19725.	50.	-2	0.01	50.00	110.	0.06	0.016	0.012	0.028	23.67	10.719
20072.	347.	-2	0.01	50.00	0.	0.42	0.105	0.083	0.188	24.09	10.907
20191.	119.	-2	0.01	50.00	110.	0.14	0.038	0.029	0.067	24.23	10.974
20350.	159.	-2	0.01	50.00	0.	0.19	0.048	0.038	0.086	24.42	11.060
20500.	150.	-1	0.01	50.00	0.	0.18	0.045	0.036	0.081	24.60	11.141
21200.	700.	0	0.01	50.00	0.	0.84	0.210	0.168	0.378	25.44	11.519
21398.	198.	0	0.01	50.00	0.	0.24	0.059	0.048	0.107	25.68	11.626
21559.	161.	0	0.01	50.00	110.	0.19	0.051	0.039	0.090	25.87	11.716
21900.	341.	0	0.01	50.00	0.	0.41	0.102	0.082	0.184	26.28	11.900
22500.	600.	-1	0.01	50.00	0.	0.72	0.180	0.144	0.324	27.00	12.225
22675.	175.	-1	0.01	50.00	0.	0.21	0.053	0.042	0.095	27.21	12.319
23725.	1050.	1	0.01	50.00	0.	1.26	0.316	0.252	0.568	28.47	12.887
24075.	350.	-3	0.01	50.00	0.	0.42	0.107	0.084	0.191	28.89	13.078
24500.	425.	3	0.02	50.00	0.	0.51	0.130	0.102	0.232	29.40	13.310
24825.	325.	-2	0.01	50.00	0.	0.39	0.098	0.078	0.176	29.79	13.486
25225.	400.	3	0.03	50.00	0.	0.48	0.122	0.096	0.218	30.27	13.704
25450.	225.	-3	0.01	50.00	0.	0.27	0.069	0.054	0.123	30.54	13.827
25625.	175.	-2	0.01	50.00	0.	0.21	0.053	0.042	0.095	30.75	13.922
26250.	625.	1	0.01	50.00	0.	0.75	0.188	0.150	0.338	31.50	14.260
26550.	300.	-2	0.01	50.00	0.	0.36	0.091	0.072	0.163	31.86	14.423
26875.	325.	0	0.01	50.00	0.	0.39	0.098	0.078	0.176	32.25	14.598
27360.	485.	0	0.01	50.00	0.	0.58	0.146	0.116	0.262	32.83	14.860
27637.	277.	0	0.01	50.00	110.	0.33	0.088	0.066	0.154	33.16	15.015
27732.	95.	0	0.01	50.00	0.	0.11	0.029	0.023	0.051	33.28	15.066
27907.	175.	0	0.01	50.00	110.	0.21	0.054	0.042	0.096	33.49	15.162
28161.	254.	0	0.01	50.00	0.	0.30	0.076	0.061	0.137	33.79	15.299
28275.	114.	0	0.01	50.00	85.	0.14	0.040	0.027	0.067	33.93	15.366
28278.	3.	0	0.01	50.00	85.	0.00	0.001	0.001	0.002	33.93	15.368
28525.	247.	0	0.01	50.00	0.	0.30	0.074	0.059	0.133	34.23	15.501
28598.	73.	-1	0.01	50.00	0.	0.09	0.022	0.018	0.039	34.32	15.541
28660.	62.	-1	0.01	50.00	110.	0.07	0.020	0.015	0.035	34.39	15.576
28714.	54.	-1	0.01	50.00	0.	0.06	0.016	0.013	0.029	34.46	15.605
28767.	53.	-1	0.01	50.00	110.	0.06	0.017	0.013	0.030	34.52	15.635
28775.	8.	-1	0.01	50.00	0.	0.01	0.002	0.002	0.004	34.53	15.639
28918.	143.	0	0.01	50.00	0.	0.17	0.043	0.034	0.077	34.70	15.716
29075.	157.	0	0.01	50.00	110.	0.19	0.048	0.038	0.086	34.89	15.802
29079.	4.	0	0.01	50.00	110.	0.00	0.001	0.001	0.002	34.89	15.804
29299.	220.	0	0.01	50.00	0.	0.26	0.066	0.053	0.119	35.16	15.923
29375.	76.	0	0.01	50.00	110.	0.09	0.025	0.018	0.043	35.25	15.966
29527.	152.	-1	0.01	50.00	110.	0.18	0.050	0.036	0.086	35.43	16.053
29561.	34.	-1	0.01	50.00	0.	0.04	0.010	0.008	0.018	35.47	16.071

DATE : 831228

TIME : 13149

ROUTE NO. 2300

IMPROVED

CALCULATION OF AVERAGES FOR A MOTOR CYCLE

OR A VEHICLE CLASS 1

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KI.MTR
1982	50.05	35.43	8.97	7.087	16.053	0.543
1983	50.05	35.43	8.97	7.087	16.053	0.543
1984	50.05	35.43	8.97	7.087	16.053	0.543
1985	50.05	35.43	8.97	7.087	16.053	0.543
1986	50.05	35.43	8.97	7.087	16.053	0.543
1987	50.05	35.43	8.97	7.087	16.053	0.543
1988	50.05	35.43	8.97	7.087	16.053	0.543
1989	50.05	35.43	8.97	7.087	16.053	0.543
1990	50.05	35.43	8.97	7.087	16.053	0.543
1991	50.05	35.43	8.97	7.087	16.053	0.543
1992	50.05	35.43	8.97	7.087	16.053	0.543
1993	50.05	35.43	8.97	7.087	16.053	0.543
1994	50.05	35.43	8.97	7.087	16.053	0.543
1995	50.05	35.43	8.97	7.087	16.053	0.543
1996	50.05	35.43	8.97	7.087	16.053	0.543
1997	50.05	35.43	8.97	7.087	16.053	0.543
1998	50.05	35.43	8.97	7.087	16.053	0.543
1999	50.05	35.43	8.97	7.087	16.053	0.543
2000	50.05	35.43	8.97	7.087	16.053	0.543

ศูนย์วิทยพัชกร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 8/31/78 TIME : 13:50

ROAD USER COST CALCULATION

ROUTE NO. 2300 IMPROVED

CALCULATION OVER THE YEAR 1982 FOR A PASSENGER CAR OR A VEHICLE CLASS 2
PEAK HISTOGRAM

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
175.	175.	-1	0.01	60.00	0.	0.18	0.175	0.231	0.406	0.18	0.406
575.	400.	0	0.01	60.00	0.	0.40	0.400	0.528	0.928	0.58	1.334
800.	225.	0	0.01	60.00	0.	0.22	0.225	0.297	0.522	0.80	1.856
3725.	150.	-2	0.01	60.00	0.	0.15	0.151	0.193	0.342	0.95	2.205
1950.	1000.	0	0.01	60.00	0.	1.00	1.000	1.320	2.320	1.95	4.525
2150.	200.	0	0.01	60.00	0.	0.20	0.200	0.264	0.464	2.15	4.939
2625.	475.	0	0.01	60.00	0.	0.48	0.475	0.627	1.102	2.63	6.091
2900.	275.	0	0.01	60.00	0.	0.28	0.275	0.363	0.639	2.90	6.729
3725.	825.	0	0.01	60.00	0.	0.83	0.825	1.089	1.914	3.73	8.643
4780.	1055.	0	0.01	60.00	0.	1.05	1.055	1.373	2.448	4.78	11.091
4900.	120.	0	0.01	60.00	87.	0.12	0.147	0.158	0.305	4.90	11.397
5080.	180.	3	0.01	60.00	87.	0.18	0.224	0.238	0.462	5.08	11.858
5300.	220.	3	0.02	60.00	0.	0.22	0.224	0.290	0.514	5.30	12.373
5675.	375.	-3	0.01	60.00	0.	0.38	0.382	0.495	0.877	5.68	13.250
5800.	125.	2	0.01	60.00	0.	0.13	0.126	0.165	0.291	5.80	13.541
6125.	325.	0	0.01	60.00	0.	0.33	0.324	0.429	0.754	6.12	14.295
6500.	375.	2	0.01	60.00	0.	0.38	0.378	0.495	0.873	6.50	15.168
7275.	775.	1	0.01	60.00	0.	0.78	0.776	1.023	1.799	7.28	16.967
7625.	350.	1	0.01	60.00	0.	0.35	0.350	0.462	0.812	7.62	17.779
7825.	200.	-4	0.01	60.00	0.	0.20	0.207	0.264	0.471	7.82	18.250
8050.	225.	2	0.01	60.00	0.	0.22	0.227	0.297	0.524	8.05	18.773
8300.	250.	-4	0.01	60.00	0.	0.25	0.258	0.330	0.588	8.30	19.362
8450.	150.	4	0.01	60.00	0.	0.15	0.155	0.198	0.323	8.45	19.715
8650.	200.	3	0.01	60.00	0.	0.20	0.204	0.264	0.468	8.65	20.182
8900.	250.	-1	0.01	60.00	0.	0.25	0.250	0.330	0.588	8.90	20.763
9075.	175.	0	0.01	60.00	0.	0.18	0.175	0.231	0.406	9.07	21.169
9300.	225.	-3	0.01	60.00	0.	0.22	0.229	0.297	0.524	9.30	21.695
9475.	175.	4	0.01	60.00	0.	0.18	0.181	0.231	0.412	9.47	22.107
9825.	350.	2	0.01	60.00	0.	0.35	0.353	0.462	0.815	9.83	22.922
10175.	350.	0	0.01	60.00	0.	0.35	0.350	0.462	0.812	10.18	23.734
10500.	325.	2	0.01	60.00	0.	0.33	0.328	0.429	0.757	10.50	24.490
10625.	125.	-3	0.01	60.00	0.	0.13	0.127	0.165	0.292	10.63	24.783
10875.	250.	0	0.01	60.00	0.	0.25	0.250	0.330	0.588	10.88	25.363
11050.	175.	-1	0.01	60.00	0.	0.18	0.175	0.231	0.406	11.05	25.769
11300.	250.	1	0.01	60.00	0.	0.25	0.250	0.330	0.588	11.30	26.349
11525.	225.	0	0.01	60.00	0.	0.22	0.225	0.297	0.522	11.53	26.871
11800.	275.	-2	0.01	60.00	0.	0.28	0.277	0.363	0.640	11.80	27.511
12298.	498.	0	0.01	60.00	0.	0.50	0.498	0.657	1.155	12.30	28.667
12555.	257.	0	0.01	60.00	95.	0.26	0.259	0.339	0.628	12.56	29.305
12600.	45.	0	0.01	60.00	0.	0.05	0.045	0.059	0.104	12.60	29.409
12900.	300.	-2	0.01	60.00	0.	0.30	0.303	0.396	0.699	12.90	30.108
13300.	400.	-1	0.01	60.00	0.	0.40	0.400	0.528	0.928	13.30	31.036
.13650.	350.	-1	0.01	60.00	0.	0.35	0.350	0.462	0.812	13.65	31.848
14475.	825.	1	0.01	60.00	0.	0.83	0.826	1.089	1.915	14.48	33.763
14490.	15.	0	0.01	60.00	0.	0.02	0.015	0.020	0.035	14.49	33.798
14694.	204.	0	0.01	60.00	95.	0.20	0.207	0.269	0.506	14.69	34.304
14875.	181.	0	0.01	60.00	0.	0.18	0.181	0.239	0.420	14.88	34.724
15125.	250.	1	0.01	60.00	0.	0.25	0.250	0.330	0.588	15.13	35.304
15600.	475.	-1	0.01	60.00	0.	0.48	0.475	0.627	1.102	15.60	36.407

CHAINAGE	INTERIM DISTANCE	GRADE (X)	UCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
15825.	225.	-2	0.01	60.00	0.	0.22	0.277	0.297	0.524	15.83	36.931
16225.	400.	-1	0.01	60.00	0.	0.40	0.400	0.528	0.928	16.23	37.859
17456.	1231.	0	0.01	60.00	0.	1.23	1.231	1.628	2.856	17.46	40.715
17552.	96.	0	0.01	60.00	110.	0.10	0.103	0.127	0.230	17.55	40.945
17775.	223.	0	0.01	60.00	0.	0.22	0.223	0.294	0.517	17.73	41.462
18550.	775.	0	0.01	60.00	0.	0.78	0.775	1.023	1.798	18.55	43.260
19098.	548.	1	0.01	60.00	0.	0.55	0.549	0.723	1.272	19.10	44.532
19150.	52.	1	0.01	60.00	72.	0.05	0.074	0.069	0.143	19.15	44.675
19186.	36.	-1	0.01	60.00	72.	0.04	0.051	0.048	0.099	19.19	44.773
19350.	164.	-1	0.01	60.00	0.	0.16	0.164	0.216	0.381	19.35	45.154
19620.	270.	1	0.01	60.00	0.	0.27	0.270	0.356	0.627	19.62	45.781
19675.	55.	1	0.01	60.00	110.	0.06	0.059	0.073	0.132	19.68	45.912
19725.	50.	-2	0.01	60.00	110.	0.05	0.054	0.066	0.120	19.73	46.032
20072.	347.	-2	0.01	60.00	0.	0.35	0.350	0.458	0.808	20.07	46.840
20191.	119.	-2	0.01	60.00	110.	0.12	0.129	0.157	0.286	20.19	47.126
20350.	159.	-2	0.01	60.00	0.	0.16	0.160	0.210	0.370	20.35	47.496
20500.	150.	-1	0.01	60.00	0.	0.15	0.150	0.198	0.348	20.50	47.844
21200.	700.	0	0.01	60.00	0.	0.70	0.700	0.924	1.624	21.20	49.468
21398.	198.	0	0.01	60.00	0.	0.20	0.198	0.263	0.459	21.40	49.928
21559.	161.	0	0.01	60.00	110.	0.16	0.173	0.213	0.385	21.56	50.313
21900.	341.	0	0.01	60.00	0.	0.34	0.341	0.450	0.791	21.90	51.104
22500.	600.	-1	0.01	60.00	0.	0.60	0.601	0.792	1.393	22.50	52.497
22675.	175.	-1	0.01	60.00	0.	0.18	0.175	0.231	0.406	22.68	52.903
23725.	1050.	1	0.01	60.00	0.	1.05	1.051	1.386	2.437	23.73	55.340
24075.	350.	-3	0.01	60.00	0.	0.35	0.356	0.462	0.818	24.08	56.158
24500.	425.	3	0.02	60.00	0.	0.43	0.433	0.561	0.994	24.50	57.152
24825.	325.	-2	0.01	60.00	0.	0.33	0.328	0.429	0.757	24.83	57.909
25225.	400.	3	0.03	60.00	0.	0.40	0.407	0.528	0.935	25.24	58.844
25450.	225.	-3	0.01	60.00	0.	0.22	0.229	0.297	0.526	25.45	59.370
25625.	175.	-2	0.01	60.00	0.	0.18	0.176	0.231	0.407	25.63	59.777
26250.	625.	1	0.01	60.00	0.	0.63	0.626	0.825	1.451	26.25	61.228
26550.	300.	-2	0.01	60.00	0.	0.30	0.303	0.396	0.699	26.55	61.926
26875.	325.	0	0.01	60.00	0.	0.33	0.325	0.429	0.754	26.88	62.680
27360.	485.	0	0.01	60.00	0.	0.48	0.485	0.640	1.125	27.36	63.806
27637.	277.	0	0.01	60.00	110.	0.28	0.297	0.366	0.663	27.64	64.468
27732.	95.	0	0.01	60.00	0.	0.10	0.095	0.125	0.220	27.73	64.689
27907.	175.	0	0.01	60.00	110.	0.18	0.181	0.231	0.412	27.91	65.101
28161.	254.	0	0.01	60.00	0.	0.25	0.254	0.335	0.589	28.16	65.690
28275.	114.	0	0.01	60.00	85.	0.11	0.110	0.150	0.290	28.28	65.980
28278.	3.	0	0.01	60.00	85.	0.00	0.004	0.004	0.008	28.28	65.988
28525.	247.	0	0.01	60.00	0.	0.25	0.247	0.326	0.573	28.53	66.561
28598.	73.	-1	0.01	60.00	0.	0.07	0.073	0.096	0.169	28.60	66.731
28660.	62.	-1	0.01	60.00	110.	0.06	0.070	0.082	0.151	28.66	66.882
28714.	54.	-1	0.01	60.00	0.	0.05	0.054	0.071	0.125	28.71	67.007
28767.	53.	-1	0.01	60.00	110.	0.05	0.057	0.070	0.127	28.77	67.134
28775.	8.	-1	0.01	60.00	0.	0.01	0.008	0.011	0.019	28.78	67.153
28918.	143.	0	0.01	60.00	0.	0.14	0.143	0.189	0.332	28.92	67.484
29075.	157.	0	0.01	60.00	110.	0.16	0.162	0.207	0.370	29.07	67.854
29079.	4.	0	0.01	60.00	110.	0.00	0.004	0.005	0.009	29.08	67.864
29299.	220.	0	0.01	60.00	0.	0.22	0.220	0.290	0.510	29.30	68.374
29375.	76.	0	0.01	60.00	110.	0.08	0.085	0.100	0.185	29.37	68.559
29527.	152.	-1	0.01	60.00	110.	0.15	0.170	0.201	0.371	29.53	68.930
29561.	34.	-1	0.01	60.00	0.	0.03	0.034	0.045	0.079	29.56	69.009

DATE : 831228

TIME : 13152

ROUTE NO. 2300

IMPROVED

CALCULATION OF AVERAGES FOR A PASSENGER CAR

OR A VEHICLE CLASS 2

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KMTR
1982	60.06	29.53	29.96	38.978	68.933	2.332
1983	60.06	29.53	29.96	38.978	68.933	2.332
1984	60.06	29.53	29.96	38.978	68.933	2.332
1985	60.06	29.53	29.96	38.978	68.933	2.332
1986	60.06	29.53	29.96	38.978	68.933	2.332
1987	60.06	29.53	29.96	38.978	68.933	2.332
1988	60.06	29.53	29.96	38.978	68.933	2.332
1989	60.06	29.53	29.96	38.978	68.933	2.332
1990	60.06	29.53	29.96	38.978	68.933	2.332
1991	60.06	29.53	29.96	38.978	68.933	2.332
1992	60.06	29.53	29.96	38.978	68.933	2.332
1993	60.06	29.53	29.96	38.978	68.933	2.332
1994	60.06	29.53	29.96	38.978	68.933	2.332
1995	60.06	29.53	29.96	38.978	68.933	2.332
1996	60.06	29.53	29.96	38.978	68.933	2.332
1997	60.06	29.53	29.96	38.978	68.933	2.332
1998	60.06	29.53	29.96	38.978	68.933	2.332
1999	60.06	29.53	29.96	38.978	68.933	2.332
2000	60.06	29.53	29.96	38.978	68.933	2.332

ศูนย์วิทยพัชกร
จุฬาลงกรณ์มหาวิทยาลัย

DATE: 8/3/228 TIME: 13153

ROAD USER COST CALCULATION

ROUTE NO. 2300 IMPROVED

CALCULATION OVER THE YEAR 1982 FOR A LIGHT TRUCK OR A VEHICLE CLASS 3
PEAK HISTOGRAM

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
175.	175.	-1	0.01	60.00	0.	0.18	0.221	0.119	0.340	0.18	0.340
575.	400.	0	0.01	60.00	0.	0.40	0.504	0.272	0.776	0.58	1.116
800.	225.	0	0.01	60.00	0.	0.22	0.283	0.153	0.436	0.80	1.552
950.	150.	-2	0.01	60.00	0.	0.15	0.191	0.102	0.293	0.95	1.846
1950.	1000.	0	0.01	60.00	0.	1.00	1.260	0.600	1.940	1.95	3.786
2150.	200.	0	0.01	60.00	0.	0.20	0.252	0.136	0.388	2.15	4.174
2625.	475.	0	0.01	60.00	0.	0.48	0.599	0.323	0.922	2.63	5.095
2900.	275.	0	0.01	60.00	0.	0.28	0.347	0.187	0.534	2.90	5.629
3725.	825.	0	0.01	60.00	0.	0.83	1.040	0.561	1.601	3.73	7.229
4780.	1055.	0	0.01	60.00	0.	1.04	1.329	0.717	2.047	4.78	9.276
4900.	120.	0	0.01	60.00	87.	0.12	0.189	0.082	0.271	4.90	9.547
5080.	180.	3	0.01	60.00	87.	0.18	0.289	0.122	0.411	5.08	9.958
5300.	220.	3	0.02	60.00	0.	0.22	0.283	0.150	0.433	5.30	10.391
5675.	375.	-3	0.01	60.00	0.	0.38	0.483	0.255	0.738	5.68	11.129
5800.	125.	2	0.01	60.00	0.	0.13	0.159	0.085	0.244	5.80	11.373
6125.	325.	0	0.01	60.00	0.	0.33	0.410	0.221	0.631	6.12	12.003
6500.	375.	2	0.01	60.00	0.	0.38	0.478	0.255	0.733	6.50	12.736
7275.	775.	1	0.01	60.00	0.	0.78	0.978	0.527	1.505	7.28	14.242
7625.	350.	1	0.01	60.00	0.	0.35	0.442	0.238	0.680	7.62	14.922
7825.	200.	-4	0.01	60.00	0.	0.20	0.263	0.136	0.399	7.82	15.321
8050.	225.	2	0.01	60.00	0.	0.22	0.287	0.153	0.440	8.05	15.761
8300.	250.	-4	0.01	60.00	0.	0.25	0.329	0.170	0.499	8.30	16.260
8450.	150.	4	0.01	60.00	0.	0.15	0.198	0.102	0.300	8.45	16.560
8650.	200.	3	0.01	60.00	0.	0.20	0.258	0.136	0.394	8.65	16.954
8900.	250.	-1	0.01	60.00	0.	0.25	0.316	0.170	0.486	8.90	17.439
9075.	175.	0	0.01	60.00	0.	0.18	0.221	0.119	0.340	9.07	17.778
9300.	225.	-3	0.01	60.00	0.	0.22	0.290	0.153	0.443	9.30	18.221
9475.	175.	4	0.01	60.00	0.	0.18	0.230	0.119	0.349	9.47	18.570
9825.	350.	2	0.01	60.00	0.	0.35	0.446	0.238	0.684	9.83	19.254
10175.	350.	0	0.01	60.00	0.	0.35	0.441	0.238	0.679	10.18	19.933
10500.	325.	2	0.01	60.00	0.	0.33	0.414	0.221	0.635	10.50	20.568
10625.	125.	-3	0.01	60.00	0.	0.13	0.161	0.085	0.246	10.63	20.814
10875.	250.	0	0.01	60.00	0.	0.25	0.315	0.170	0.485	10.88	21.299
11050.	175.	-1	0.01	60.00	0.	0.18	0.221	0.119	0.340	11.05	21.639
11300.	250.	1	0.01	60.00	0.	0.25	0.316	0.170	0.486	11.30	22.125
11525.	225.	0	0.01	60.00	0.	0.22	0.283	0.153	0.436	11.53	22.561
11800.	275.	-2	0.01	60.00	0.	0.28	0.350	0.187	0.537	11.80	23.099
12298.	498.	0	0.01	60.00	0.	0.50	0.627	0.339	0.966	12.30	24.065
12555.	257.	0	0.01	60.00	95.	0.24	0.386	0.175	0.561	12.56	24.626
12600.	45.	0	0.01	60.00	0.	0.05	0.057	0.031	0.087	12.60	24.713
12900.	300.	-2	0.01	60.00	0.	0.30	0.382	0.204	0.586	12.90	25.300
13300.	400.	-1	0.01	60.00	0.	0.40	0.505	0.272	0.777	13.30	26.077
13650.	350.	-1	0.01	60.00	0.	0.35	0.442	0.238	0.680	13.65	26.757
14475.	825.	1	0.01	60.00	0.	0.83	1.042	0.561	1.603	14.48	28.359
14490.	15.	0	0.01	60.00	0.	0.02	0.019	0.010	0.029	14.49	28.388
14694.	204.	0	0.01	60.00	95.	0.20	0.307	0.139	0.445	14.69	28.834
14875.	181.	0	0.01	60.00	0.	0.18	0.228	0.123	0.351	14.88	29.185
15125.	250.	1	0.01	60.00	0.	0.25	0.316	0.170	0.486	15.13	29.671
15600.	475.	-1	0.01	60.00	0.	0.48	0.600	0.323	0.923	15.60	30.593

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
15825.	225.	-2	0.01	60.00	0.	0.22	0.267	0.153	0.440	15.83	31.033
16225.	400.	-1	0.01	60.00	0.	0.40	0.505	0.272	0.777	16.23	31.810
17456.	1231.	0	0.01	60.00	0.	1.23	1.551	0.837	2.388	17.46	34.198
17552.	96.	0	0.01	60.00	110.	0.10	0.131	0.065	0.197	17.55	34.395
17775.	223.	0	0.01	60.00	0.	0.22	0.261	0.152	0.433	17.78	34.827
18550.	775.	0	0.01	60.00	0.	0.78	0.977	0.527	1.504	18.55	36.331
19098.	548.	1	0.01	60.00	0.	0.55	0.692	0.373	1.065	19.10	37.395
19150.	52.	1	0.01	60.00	72.	0.05	0.096	0.035	0.131	19.15	37.527
19186.	36.	-1	0.01	60.00	72.	0.04	0.067	0.024	0.091	19.19	37.618
19350.	164.	-1	0.01	60.00	0.	0.16	0.207	0.112	0.319	19.35	37.936
19620.	270.	1	0.01	60.00	0.	0.27	0.341	0.184	0.524	19.62	38.461
19675.	55.	1	0.01	60.00	110.	0.06	0.075	0.037	0.113	19.68	38.574
19725.	50.	-2	0.01	60.00	110.	0.05	0.069	0.034	0.103	19.73	38.677
20072.	347.	-2	0.01	60.00	0.	0.35	0.442	0.236	0.678	20.07	39.355
20191.	119.	-2	0.01	60.00	110.	0.12	0.165	0.081	0.245	20.19	39.601
20350.	159.	-2	0.01	60.00	0.	0.16	0.203	0.108	0.311	20.35	39.911
20500.	150.	-1	0.01	60.00	0.	0.15	0.189	0.102	0.291	20.50	40.203
21200.	700.	0	0.01	60.00	0.	0.70	0.862	0.476	1.338	21.20	41.541
21398.	198.	0	0.01	60.00	0.	0.20	0.249	0.135	0.384	21.40	41.925
21559.	161.	0	0.01	60.00	110.	0.16	0.220	0.109	0.330	21.56	42.275
21900.	341.	0	0.01	60.00	0.	0.34	0.430	0.232	0.662	21.90	42.936
22500.	600.	-1	0.01	60.00	0.	0.60	0.738	0.408	1.146	22.50	44.102
22675.	175.	-1	0.01	60.00	0.	0.18	0.221	0.119	0.340	22.68	44.442
23725.	1050.	1	0.01	60.00	0.	1.05	1.326	0.714	2.040	23.73	46.481
24075.	350.	-3	0.01	60.00	0.	0.35	0.451	0.238	0.689	24.08	47.170
24500.	425.	3	0.02	60.00	0.	0.43	0.547	0.289	0.836	24.50	48.006
24825.	325.	-2	0.01	60.00	0.	0.33	0.414	0.221	0.635	24.83	48.641
25225.	400.	3	0.03	60.00	0.	0.40	0.515	0.272	0.787	25.23	49.429
25450.	225.	-3	0.01	60.00	0.	0.22	0.290	0.153	0.443	25.45	49.871
25625.	175.	-2	0.01	60.00	0.	0.18	0.223	0.119	0.342	25.63	50.213
26250.	625.	1	0.01	60.00	0.	0.63	0.789	0.425	1.214	26.25	51.427
26550.	300.	-2	0.01	60.00	0.	0.30	0.382	0.204	0.586	26.55	52.014
26875.	325.	0	0.01	60.00	0.	0.33	0.410	0.221	0.631	26.88	52.644
27360.	485.	0	0.01	60.00	0.	0.48	0.611	0.330	0.941	27.36	53.585
27637.	277.	0	0.01	60.00	110.	0.28	0.359	0.188	0.547	27.64	54.133
27732.	95.	0	0.01	60.00	0.	0.10	0.120	0.065	0.184	27.73	54.317
27907.	175.	0	0.01	60.00	110.	0.18	0.230	0.119	0.349	27.91	54.666
28161.	254.	0	0.01	60.00	0.	0.25	0.320	0.173	0.493	28.16	55.179
28275.	114.	0	0.01	60.00	85.	0.11	0.180	0.078	0.257	28.28	55.436
28278.	3.	0	0.01	60.00	85.	0.00	0.005	0.002	0.007	28.28	55.443
28525.	247.	0	0.01	60.00	0.	0.25	0.311	0.168	0.479	28.53	55.922
28598.	73.	-1	0.01	60.00	0.	0.07	0.092	0.050	0.142	28.60	56.064
28660.	62.	-1	0.01	60.00	110.	0.06	0.089	0.042	0.131	28.66	56.195
28714.	54.	-1	0.01	60.00	0.	0.05	0.068	0.037	0.105	28.71	56.300
28767.	53.	-1	0.01	60.00	110.	0.05	0.073	0.036	0.109	28.77	56.408
28775.	8.	-1	0.01	60.00	0.	0.01	0.010	0.005	0.016	28.78	56.424
28918.	143.	0	0.01	60.00	0.	0.14	0.180	0.097	0.277	28.92	56.701
29075.	157.	0	0.01	60.00	110.	0.16	0.206	0.107	0.313	29.07	57.014
29079.	4.	0	0.01	60.00	110.	0.00	0.005	0.003	0.008	29.08	57.022
29299.	220.	0	0.01	60.00	0.	0.22	0.277	0.150	0.427	29.30	57.449
29375.	76.	0	0.01	60.00	110.	0.08	0.109	0.052	0.161	29.37	57.610
29527.	152.	-1	0.01	60.00	110.	0.15	0.218	0.103	0.322	29.53	57.931
29561.	34.	-1	0.01	60.00	0.	0.03	0.043	0.023	0.066	29.56	57.997

ROUTE NO. 2300

IMPROVED

DATE : 03/22/80

TIME : 13:55

CALCULATION OF AVERAGES FOR A LIGHT TRUCK

OR A VEHICLE CLASS 3

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOMETER
1982	60.06	29.53	37.85	20.079	57.933	1.960
1983	60.06	29.53	37.85	20.079	57.933	1.960
1984	60.06	29.53	37.85	20.079	57.933	1.960
1985	60.06	29.53	37.85	20.079	57.933	1.960
1986	60.06	29.53	37.85	20.079	57.933	1.960
1987	60.06	29.53	37.85	20.079	57.933	1.960
1988	60.06	29.53	37.85	20.079	57.933	1.960
1989	60.06	29.53	37.85	20.079	57.933	1.960
1990	60.06	29.53	37.85	20.079	57.933	1.960
1991	60.06	29.53	37.85	20.079	57.933	1.960
1992	60.06	29.53	37.85	20.079	57.933	1.960
1993	60.06	29.53	37.85	20.079	57.933	1.960
1994	60.06	29.53	37.85	20.079	57.933	1.960
1995	60.06	29.53	37.85	20.079	57.933	1.960
1996	60.06	29.53	37.85	20.079	57.933	1.960
1997	60.06	29.53	37.85	20.079	57.933	1.960
1998	60.06	29.53	37.85	20.079	57.933	1.960
1999	60.06	29.53	37.85	20.079	57.933	1.960
2000	60.06	29.53	37.85	20.079	57.933	1.960

ศูนย์วิทยพัชกร
จุฬาลงกรณ์มหาวิทยาลัย

DATE : 831228 TIME : 13:56

ROAD USER COST CALCULATION

ROUTE NO. 2300 IMPROVED

CALCULATION OVER THE YEAR 1982 FOR A MED TRUCK
PEAK HISTOGRAM OR A VEHICLE CLASS 4

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
175.	175.	-1	0.01	50.00	0.	0.21	0.525	0.613	1.138	0.21	1.138
575.	400.	0	0.01	50.00	0.	0.48	1.204	1.400	2.604	0.69	3.742
800.	225.	0	0.01	50.00	0.	0.27	0.677	0.788	1.465	0.96	5.207
950.	150.	-2	0.01	50.00	0.	0.18	0.454	0.525	0.979	1.14	6.186
1950.	1000.	0	0.01	50.00	0.	1.20	3.010	3.500	6.510	2.34	12.696
2150.	200.	0	0.01	50.00	0.	0.24	0.602	0.700	1.302	2.58	13.998
2625.	475.	0	0.01	50.00	0.	0.57	1.430	1.663	3.092	3.15	17.090
2900.	275.	0	0.01	50.00	0.	0.33	0.828	0.963	1.790	3.48	18.881
3725.	825.	0	0.01	50.00	0.	0.99	2.483	2.888	5.371	4.47	24.251
4780.	1055.	0	0.01	50.00	0.	1.27	3.176	3.693	6.868	5.74	31.119
4900.	120.	0	0.01	50.00	87.	0.14	0.435	0.490	0.855	5.88	31.974
5080.	180.	3	0.01	50.00	87.	0.22	0.676	0.730	1.306	6.10	33.280
5300.	220.	3	0.02	37.08	0.	0.36	1.161	0.816	1.977	6.45	35.257
5675.	375.	-3	0.01	50.00	0.	0.45	1.179	1.313	2.491	6.90	37.749
5800.	125.	2	0.01	50.00	0.	0.15	0.379	0.438	0.816	7.05	38.565
6125.	325.	0	0.01	50.00	0.	0.39	0.978	1.138	2.116	7.44	40.681
6500.	375.	2	0.01	42.89	0.	0.52	1.638	1.321	2.959	7.97	43.640
7275.	775.	1	0.01	50.00	0.	0.93	2.327	2.713	5.039	8.90	48.679
7625.	350.	1	0.01	50.00	0.	0.42	1.051	1.225	2.276	9.32	50.955
7825.	200.	-4	0.01	50.00	0.	0.24	0.666	0.700	1.366	9.56	52.321
8050.	225.	2	0.01	50.00	0.	0.27	0.682	0.788	1.469	9.83	53.790
8300.	250.	-4	0.01	50.00	0.	0.30	0.832	0.875	1.707	10.13	55.497
8450.	150.	4	0.01	50.00	0.	0.18	0.499	0.525	1.024	10.31	56.521
8650.	200.	3	0.01	38.47	0.	0.31	1.131	0.708	1.837	10.62	58.358
8900.	250.	-1	0.01	50.00	0.	0.30	0.751	0.875	1.626	10.92	59.984
9075.	175.	0	0.01	50.00	0.	0.30	0.751	0.875	1.626	11.13	61.610
9300.	225.	-3	0.01	50.00	0.	0.21	0.527	0.613	1.139	11.40	62.748
9475.	175.	4	0.01	50.00	0.	0.27	0.707	0.788	1.495	11.61	63.833
9825.	350.	2	0.01	42.62	0.	0.21	0.582	0.613	1.195	11.61	65.028
10175.	350.	0	0.01	50.00	0.	0.49	1.564	1.230	2.794	12.10	67.822
10500.	325.	2	0.01	42.28	0.	0.42	1.054	1.225	2.279	12.52	70.101
10625.	125.	-3	0.01	50.00	0.	0.46	1.490	1.140	2.630	12.98	72.731
10875.	250.	0	0.01	50.00	0.	0.15	0.393	0.438	0.830	13.13	73.561
11050.	175.	-1	0.01	50.00	0.	0.30	0.753	0.875	1.628	13.43	75.189
11300.	250.	1	0.01	50.00	0.	0.21	0.525	0.613	1.138	13.64	76.327
11525.	225.	0	0.01	50.00	0.	0.21	0.525	0.613	1.138	13.94	77.465
11800.	275.	-2	0.01	50.00	0.	0.30	0.751	0.875	1.626	14.21	79.091
12298.	498.	0	0.01	50.00	0.	0.27	0.677	0.788	1.465	14.54	79.998
12555.	257.	0	0.01	50.00	95.	0.33	0.833	0.963	1.796	15.14	83.294
12600.	45.	0	0.01	50.00	0.	0.60	1.499	1.743	3.242	15.14	85.036
12900.	300.	-2	0.01	50.00	0.	0.31	0.898	0.900	1.798	15.45	86.834
13300.	400.	0	0.01	50.00	0.	0.05	0.135	0.158	0.293	15.86	87.127
13650.	350.	-1	0.01	50.00	0.	0.36	0.909	1.050	1.959	15.86	89.086
14475.	825.	1	0.01	50.00	0.	0.48	1.201	1.400	2.601	16.34	91.687
14490.	15.	0	0.01	50.00	0.	0.48	1.201	1.400	2.601	16.76	94.288
14694.	204.	-1	0.01	50.00	0.	0.42	1.051	1.225	2.276	17.05	96.564
14875.	181.	0	0.01	50.00	0.	0.99	2.477	2.888	5.365	17.75	97.531
15125.	250.	1	0.01	50.00	0.	0.02	0.045	0.053	0.098	17.77	97.629
15600.	475.	-1	0.01	50.00	0.	0.02	0.045	0.053	0.098	18.02	99.056
		0	0.01	50.00	95.	0.24	0.713	0.714	1.427	18.23	100.234
		0	0.01	50.00	0.	0.22	0.545	0.634	1.178	18.53	101.059
		1	0.01	50.00	0.	0.30	0.753	0.875	1.626	18.53	101.859
		-1	0.01	50.00	0.	0.37	1.026	1.163	2.089	19.10	104.948

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
15825.	225.	-2	0.01	50.00	0.	0.27	0.682	0.788	1.469	19.37	106.417
16225.	400.	-1	0.01	50.00	0.	0.48	1.201	1.400	2.601	19.85	109.018
17456.	1231.	0	0.01	50.00	0.	1.48	3.705	4.309	8.014	21.33	117.032
17552.	96.	0	0.01	50.00	110.	0.12	0.312	0.336	0.648	21.44	117.680
17775.	223.	0	0.01	50.00	0.	0.27	0.671	0.761	1.432	21.71	119.132
18550.	775.	0	0.01	50.00	0.	0.93	2.333	2.713	5.045	22.64	124.177
19098.	548.	1	0.01	50.00	0.	0.66	1.645	1.918	3.563	23.30	127.741
19150.	52.	1	0.01	50.00	72.	0.06	0.212	0.182	0.394	23.36	128.134
19186.	36.	-1	0.01	50.00	72.	0.04	0.147	0.126	0.273	23.41	128.407
19350.	164.	-1	0.01	50.00	0.	0.20	0.492	0.574	1.066	23.60	129.473
19620.	270.	1	0.01	50.00	0.	0.32	0.811	0.945	1.756	23.93	131.229
19675.	55.	1	0.01	50.00	110.	0.07	0.179	0.192	0.371	23.99	131.600
19725.	50.	-2	0.01	50.00	110.	0.06	0.164	0.175	0.339	24.05	131.939
20072.	347.	-2	0.01	50.00	0.	0.42	1.051	1.215	2.266	24.47	134.204
20191.	119.	-2	0.01	50.00	110.	0.14	0.390	0.417	0.806	24.61	135.010
20350.	159.	-2	0.01	50.00	0.	0.19	0.482	0.557	1.038	24.80	136.049
20500.	150.	-1	0.01	50.00	0.	0.18	0.450	0.525	0.975	24.98	137.024
21200.	700.	0	0.01	50.00	0.	0.84	2.107	2.450	4.557	25.82	141.581
21398.	198.	0	0.01	50.00	0.	0.24	0.596	0.693	1.289	26.06	142.870
21559.	161.	0	0.01	50.00	110.	0.19	0.524	0.564	1.087	26.25	143.957
21900.	341.	0	0.01	50.00	0.	0.41	1.026	1.194	2.220	26.66	146.177
22500.	600.	-1	0.01	50.00	0.	0.72	1.801	2.100	3.901	27.38	150.079
22675.	175.	-1	0.01	50.00	0.	0.21	0.525	0.613	1.138	27.59	151.217
23725.	1050.	1	0.01	50.00	0.	1.26	3.153	3.675	6.828	28.85	158.044
24075.	350.	-3	0.01	50.00	0.	0.42	1.100	1.225	2.325	29.27	160.370
24500.	425.	3	0.02	39.21	0.	0.65	1.763	1.586	3.349	29.92	163.719
24825.	325.	-2	0.01	50.00	0.	0.39	0.985	1.138	2.122	30.31	165.841
25225.	400.	3	0.03	29.29	0.	0.82	2.157	1.626	3.783	31.13	169.624
25450.	225.	-3	0.01	50.00	0.	0.27	0.707	0.768	1.475	31.40	171.139
25625.	175.	-2	0.01	50.00	0.	0.21	0.530	0.613	1.143	31.61	172.281
26250.	625.	1	0.01	50.00	0.	0.75	1.877	2.188	4.064	32.36	176.345
26550.	300.	-2	0.01	50.00	0.	0.36	0.909	1.050	1.959	32.72	178.304
26875.	325.	0	0.01	50.00	0.	0.39	0.978	1.138	2.116	33.11	180.400
27360.	485.	0	0.01	50.00	0.	0.58	1.460	1.698	3.157	33.69	183.557
27637.	277.	0	0.01	50.00	110.	0.33	0.901	0.970	1.871	34.03	185.428
27732.	95.	0	0.01	50.00	0.	0.11	0.286	0.333	0.618	34.14	186.047
27907.	175.	0	0.01	50.00	110.	0.21	0.547	0.613	1.160	34.35	187.206
28161.	254.	0	0.01	50.00	0.	0.30	0.765	0.889	1.654	34.66	188.860
28275.	114.	0	0.01	50.00	85.	0.14	0.413	0.399	0.812	34.79	189.672
28278.	3.	0	0.01	50.00	85.	0.00	0.011	0.011	0.021	34.80	189.693
28525.	247.	0	0.01	50.00	0.	0.30	0.743	0.865	1.608	35.09	191.301
28598.	73.	-1	0.01	50.00	0.	0.09	0.219	0.256	0.475	35.18	191.776
28660.	62.	-1	0.01	50.00	110.	0.07	0.209	0.217	0.426	35.25	192.201
28714.	54.	-1	0.01	50.00	0.	0.06	0.162	0.189	0.351	35.32	192.553
28767.	53.	-1	0.01	50.00	110.	0.06	0.172	0.185	0.358	35.38	192.910
28775.	8.	-1	0.01	50.00	0.	0.01	0.024	0.026	0.052	35.39	192.962
28918.	143.	0	0.01	50.00	0.	0.17	0.430	0.501	0.931	35.56	193.893
29075.	157.	0	0.01	50.00	110.	0.19	0.491	0.550	1.041	35.75	194.934
29079.	4.	0	0.01	50.00	110.	0.00	0.013	0.014	0.027	35.76	194.960
29299.	220.	0	0.01	50.00	0.	0.26	0.662	0.770	1.432	36.02	196.392
29375.	76.	0	0.01	50.00	110.	0.09	0.256	0.266	0.522	36.11	196.915
29527.	152.	-1	0.01	50.00	110.	0.18	0.512	0.532	1.044	36.29	197.958
29561.	34.	-1	0.01	50.00	0.	0.04	0.102	0.119	0.221	36.34	198.180

DATE : 8/3/28

TIME : 13:59

ROUTE NO. 2300

IMPROVED

CALCULATION OF AVERAGES FOR A MED TRUCK

OR A VEHICLE CLASS 4

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOMETER
1982	48.87	36.30	94.22	103.743	197.962	6.697
1983	48.87	36.30	94.22	103.743	197.962	6.697
1984	48.87	36.30	94.22	103.743	197.962	6.697
1985	48.87	36.30	94.22	103.743	197.962	6.697
1986	48.87	36.30	94.22	103.743	197.962	6.697
1987	48.87	36.30	94.22	103.743	197.962	6.697
1988	48.87	36.30	94.22	103.743	197.962	6.697
1989	48.87	36.30	94.22	103.743	197.962	6.697
1990	48.87	36.30	94.22	103.743	197.962	6.697
1991	48.87	36.30	94.22	103.743	197.962	6.697
1992	48.87	36.30	94.22	103.743	197.962	6.697
1993	48.87	36.30	94.22	103.743	197.962	6.697
1994	48.87	36.30	94.22	103.743	197.962	6.697
1995	48.87	36.30	94.22	103.743	197.962	6.697
1996	48.87	36.30	94.22	103.743	197.962	6.697
1997	48.87	36.30	94.22	103.743	197.962	6.697
1998	48.87	36.30	94.22	103.743	197.962	6.697
1999	48.87	36.30	94.22	103.743	197.962	6.697
2000	48.87	36.30	94.22	103.743	197.962	6.697

ศูนย์วิทยพัชกร

จุฬาลงกรณ์มหาวิทยาลัย

ROAD USER COST CALCULATION

ROUTE NO. 2300 IMPROVED

CALCULATION OVER THE YEAR 1982 FOR A HVY TRUCK OR A VEHICLE CLASS 5
PEAK HISTOGRAM

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
175.	175.	-1	0.01	55.00	0.	0.19	0.956	0.707	1.665	0.19	1.665
575.	400.	0	0.01	55.00	0.	0.44	2.122	1.520	3.742	0.63	5.407
800.	225.	0	0.01	55.00	0.	0.25	1.194	0.911	2.105	0.87	7.512
950.	150.	-2	0.01	55.00	0.	0.16	0.871	0.608	1.478	1.04	8.970
1950.	1000.	0	0.01	55.00	0.	1.09	5.305	4.050	9.355	2.13	18.345
2150.	200.	0	0.01	55.00	0.	0.22	1.061	0.810	1.871	2.35	20.216
2625.	475.	0	0.01	55.00	0.	0.52	2.520	1.924	4.444	2.86	24.660
2900.	275.	0	0.01	55.00	0.	0.30	1.459	1.114	2.573	3.16	27.232
3725.	825.	0	0.01	55.00	0.	0.90	4.377	3.341	7.718	4.06	34.950
4780.	1055.	0	0.01	55.00	0.	1.15	5.977	4.273	9.870	5.21	44.820
4900.	120.	0	0.01	55.00	87.	0.13	0.925	0.436	1.411	5.35	46.231
5080.	180.	3	0.01	55.00	87.	0.20	1.587	0.729	2.316	5.54	48.547
5300.	220.	3	0.02	35.77	0.	0.37	3.508	0.996	4.504	5.91	53.051
5675.	375.	-3	0.01	55.00	0.	0.41	2.403	1.519	3.921	6.32	56.972
5800.	125.	2	0.01	55.00	0.	0.14	0.726	0.506	1.232	6.46	58.204
6125.	325.	0	0.01	55.00	0.	0.35	1.724	1.316	3.040	6.81	61.245
6500.	375.	2	0.01	41.37	0.	0.54	4.317	1.595	5.911	7.35	67.156
7275.	775.	1	0.01	55.00	0.	0.85	4.234	3.139	7.373	8.20	74.529
7625.	350.	1	0.01	55.00	0.	0.38	1.912	1.418	3.330	8.58	77.859
7825.	200.	-4	0.01	55.00	0.	0.22	1.231	0.810	2.041	8.80	79.900
8050.	225.	2	0.01	50.75	0.	0.27	1.266	0.944	2.209	9.07	82.109
8300.	250.	-4	0.01	55.00	0.	0.27	1.539	1.012	2.551	9.34	84.660
8450.	150.	4	0.01	55.00	0.	0.16	0.923	0.608	1.531	9.50	86.191
8650.	200.	3	0.01	36.26	0.	0.33	3.445	0.853	4.298	9.83	90.489
8900.	250.	-1	0.01	55.00	0.	0.27	1.366	1.012	2.378	10.11	92.868
9075.	175.	0	0.01	55.00	0.	0.19	0.928	0.709	1.637	10.30	94.505
9300.	225.	-3	0.01	55.00	0.	0.25	1.442	0.911	2.353	10.54	96.858
9475.	175.	4	0.01	55.00	0.	0.19	1.077	0.709	1.786	10.73	98.644
9825.	350.	2	0.01	41.00	0.	0.51	4.180	1.485	5.665	11.25	104.309
10175.	350.	0	0.01	55.00	0.	0.38	1.857	1.418	3.274	11.63	107.583
10500.	325.	2	0.01	40.54	0.	0.48	4.043	1.375	5.418	12.11	113.001
10625.	125.	-3	0.01	55.00	0.	0.14	0.801	0.506	1.307	12.24	114.308
10875.	250.	0	0.01	55.00	0.	0.27	1.324	1.012	2.339	12.52	116.647
11050.	175.	-1	0.01	55.00	0.	0.19	0.956	0.709	1.665	12.71	118.312
11300.	250.	1	0.01	55.00	0.	0.27	1.366	1.012	2.378	12.98	120.690
11525.	225.	0	0.01	55.00	0.	0.25	1.194	0.911	2.105	13.23	122.795
11800.	275.	-2	0.01	55.00	0.	0.30	1.597	1.114	2.711	13.53	125.506
12298.	498.	0	0.01	55.00	0.	0.54	2.642	2.017	4.659	14.07	130.164
12555.	257.	0	0.01	55.00	95.	0.28	1.834	1.043	2.877	14.35	133.040
12600.	45.	0	0.01	55.00	0.	0.05	0.239	0.182	0.421	14.40	133.461
12900.	300.	-2	0.01	55.00	0.	0.33	1.742	1.215	2.957	14.73	136.418
13300.	400.	-1	0.01	55.00	0.	0.44	2.185	1.620	3.805	15.16	140.223
13650.	350.	-1	0.01	55.00	0.	0.38	1.912	1.418	3.330	15.54	143.553
14475.	825.	1	0.01	55.00	0.	0.90	4.507	3.341	7.849	16.44	151.401
14490.	15.	0	0.01	55.00	0.	0.02	0.080	0.063	0.140	16.46	151.542
14694.	204.	0	0.01	55.00	95.	0.22	1.456	0.826	2.282	16.68	153.824
14875.	181.	0	0.01	55.00	0.	0.20	0.960	0.733	1.693	16.88	155.517
15125.	250.	1	0.01	55.00	0.	0.27	1.366	1.012	2.378	17.15	157.896
15600.	475.	-1	0.01	55.00	0.	0.52	2.595	1.924	4.519	17.67	162.415

CHAINAGE	INTERIM DISTANCE	GRADE (X)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
15825.	225.	-2	0.01	55.00	0.	0.25	1.306	0.911	2.218	17.92	164.632
16225.	400.	-1	0.01	55.00	0.	0.44	2.185	1.620	3.805	18.35	168.438
17456.	1231.	0	0.01	55.00	0.	1.34	6.530	4.986	11.516	19.70	179.954
17552.	96.	0	0.01	55.00	110.	0.10	0.591	0.389	0.979	19.80	180.933
17775.	223.	0	0.01	55.00	0.	0.24	1.183	0.903	2.086	20.04	183.019
18550.	775.	0	0.01	55.00	0.	0.85	4.111	3.139	7.250	20.89	190.269
19098.	548.	1	0.01	55.00	0.	0.60	2.994	2.219	5.213	21.49	195.483
19150.	52.	1	0.01	55.00	72.	0.06	0.533	0.211	0.743	21.54	196.226
19186.	36.	-1	0.01	55.00	72.	0.04	0.369	0.146	0.515	21.58	196.741
19350.	164.	-1	0.01	55.00	0.	0.18	0.896	0.664	1.560	21.76	198.301
19620.	270.	1	0.01	55.00	0.	0.29	1.475	1.094	2.569	22.06	200.870
19675.	55.	1	0.01	55.00	110.	0.06	0.347	0.223	0.570	22.32	201.440
19725.	50.	-2	0.01	55.00	110.	0.05	0.333	0.203	0.535	22.37	201.975
20072.	347.	-2	0.01	55.00	0.	0.38	2.015	1.405	3.420	22.55	205.395
20191.	119.	-2	0.01	55.00	110.	0.13	0.792	0.482	1.274	22.68	206.669
20350.	159.	-2	0.01	55.00	0.	0.17	0.923	0.644	1.567	22.85	208.236
20500.	150.	-1	0.01	55.00	0.	0.16	0.820	0.608	1.427	23.02	209.663
21200.	700.	0	0.01	55.00	0.	0.76	3.714	2.835	6.549	23.78	216.212
21398.	198.	0	0.01	55.00	0.	0.22	1.050	0.802	1.852	24.00	218.064
21559.	161.	0	0.01	55.00	110.	0.18	0.990	0.652	1.642	24.17	219.706
21900.	341.	0	0.01	55.00	0.	0.37	1.809	1.381	3.190	24.54	222.896
22500.	600.	-1	0.01	55.00	0.	0.65	3.278	2.430	5.708	25.20	228.604
22675.	175.	-1	0.01	55.00	0.	0.19	0.956	0.709	1.665	25.39	230.269
23725.	1050.	1	0.01	55.00	0.	1.15	5.737	4.253	9.989	26.54	240.259
24075.	350.	-3	0.01	55.00	0.	0.38	2.243	1.418	3.660	26.92	243.919
24500.	425.	3	0.02	38.49	0.	0.66	4.686	1.938	6.624	27.58	250.543
24825.	325.	-2	0.01	55.00	0.	0.35	1.887	1.316	3.203	27.93	253.746
25225.	400.	3	0.03	28.94	0.	0.83	6.233	2.012	8.245	28.76	261.991
25450.	225.	-3	0.01	55.00	0.	0.25	1.442	0.911	2.353	29.01	264.344
25625.	175.	-2	0.01	55.00	0.	0.19	1.016	0.709	1.725	29.20	266.069
26250.	625.	1	0.01	55.00	0.	0.68	3.415	2.531	5.946	29.88	272.015
26550.	300.	-2	0.01	55.00	0.	0.33	1.742	1.215	2.957	30.21	274.972
26875.	325.	0	0.01	55.00	0.	0.35	1.724	1.316	3.040	30.56	278.012
27360.	485.	0	0.01	55.00	0.	0.53	2.573	1.964	4.537	31.09	282.550
27637.	277.	0	0.01	55.00	110.	0.30	1.704	1.122	2.826	31.40	285.375
27732.	95.	0	0.01	55.00	0.	0.10	0.504	0.385	0.889	31.50	286.264
27907.	175.	0	0.01	55.00	110.	0.19	1.001	0.709	1.710	31.69	287.974
28161.	254.	0	0.01	55.00	0.	0.28	1.347	1.029	2.376	31.97	290.350
28275.	114.	0	0.01	55.00	85.	0.12	0.879	0.462	1.341	32.09	291.691
28278.	3.	0	0.01	55.00	85.	0.00	0.023	0.012	0.035	32.09	291.726
28525.	247.	0	0.01	55.00	0.	0.27	1.310	1.000	2.313	32.36	294.037
28598.	73.	-1	0.01	55.00	0.	0.08	0.399	0.296	0.694	32.44	294.731
28660.	62.	-1	0.01	55.00	110.	0.07	0.421	0.251	0.672	32.51	295.403
28714.	54.	-1	0.01	55.00	0.	0.06	0.295	0.219	0.514	32.57	295.917
28767.	53.	-1	0.01	55.00	110.	0.06	0.334	0.215	0.549	32.63	296.466
28775.	8.	-1	0.01	55.00	0.	0.01	0.044	0.032	0.076	32.64	296.542
28918.	143.	0	0.01	55.00	0.	0.16	0.759	0.579	1.338	32.79	297.880
29075.	157.	0	0.01	55.00	110.	0.17	0.898	0.636	1.534	32.96	299.414
29079.	4.	0	0.01	55.00	110.	0.00	0.023	0.016	0.039	32.97	299.453
29299.	220.	0	0.01	55.00	0.	0.24	1.167	0.891	2.058	33.21	301.511
29375.	76.	0	0.01	55.00	110.	0.08	0.504	0.308	0.812	33.29	302.322
29527.	152.	-1	0.01	55.00	110.	0.17	1.032	0.616	1.647	33.46	303.970
29561.	34.	-1	0.01	55.00	0.	0.04	0.186	0.138	0.323	33.49	304.293

ROUTE NO. 2300

IMPROVED

DATE : 03/22/88

TIME : 14:2

CALCULATION OF AVERAGES FOR A HWY TRUCK

OR A VEHICLE CLASS 5

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PTR KILOMTR
1982	53.01	33.46	183.38	120.581	303.958	10.202
1983	53.01	33.46	183.38	120.581	303.958	10.202
1984	53.01	33.46	183.38	120.581	303.958	10.202
1985	53.01	33.46	183.38	120.581	303.958	10.202
1986	53.01	33.46	183.38	120.581	303.958	10.202
1987	53.01	33.46	183.38	120.581	303.958	10.202
1988	53.01	33.46	183.38	120.581	303.958	10.202
1989	53.01	33.46	183.38	120.581	303.958	10.202
1990	53.01	33.46	183.38	120.581	303.958	10.202
1991	53.01	33.46	183.38	120.581	303.958	10.202
1992	53.01	33.46	183.38	120.581	303.958	10.202
1993	53.01	33.46	183.38	120.581	303.958	10.202
1994	53.01	33.46	183.38	120.581	303.958	10.202
1995	53.01	33.46	183.38	120.581	303.958	10.202
1996	53.01	33.46	183.38	120.581	303.958	10.202
1997	53.01	33.46	183.38	120.581	303.958	10.202
1998	53.01	33.46	183.38	120.581	303.958	10.202
1999	53.01	33.46	183.38	120.581	303.958	10.202
2000	53.01	33.46	183.38	120.581	303.958	10.202

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ROAD USER COST CALCULATION

ROUTE NO. 2300 IMPROVED

CALCULATION OVER THE YEAR 1982 FOR A LOT BUS PEAK HISTOGRAM OR A VEHICLE CLASS 6

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
						0.21	0.200	0.201	0.401	0.21	0.401
175.	175.	-1	0.01	50.00	0.	0.48	0.454	0.460	0.914	0.69	1.317
575.	400.	0	0.01	50.00	0.	0.27	0.257	0.259	0.515	0.94	1.832
800.	225.	0	0.01	50.00	0.	0.18	0.173	0.173	0.345	1.14	2.178
950.	150.	-2	0.01	50.00	0.	1.20	1.140	1.150	2.290	2.34	4.468
1950.	1000.	0	0.01	50.00	0.	0.24	0.228	0.230	0.458	2.58	4.926
2150.	200.	0	0.01	50.00	0.	0.57	0.542	0.544	1.088	3.15	6.013
2625.	475.	0	0.01	50.00	0.	0.34	0.313	0.314	0.630	3.48	6.643
2900.	275.	0	0.01	50.00	0.	0.99	0.941	0.942	1.882	4.47	8.525
3725.	825.	0	0.01	50.00	0.	1.27	1.203	1.213	2.414	5.74	10.940
4780.	1055.	0	0.01	50.00	0.	0.14	0.131	0.133	0.262	5.88	11.202
4900.	120.	0	0.01	50.00	87.	0.22	0.245	0.207	0.452	6.10	11.700
5080.	180.	3	0.01	50.00	87.	0.22	0.245	0.253	0.502	6.34	12.202
5300.	220.	3	0.02	50.00	0.	0.26	0.254	0.431	0.683	6.81	13.075
5475.	375.	-3	0.01	50.00	0.	0.45	0.435	0.431	0.868	6.81	13.354
5800.	125.	2	0.01	50.00	0.	0.15	0.144	0.144	0.288	6.95	13.642
6125.	325.	0	0.01	50.00	0.	0.39	0.371	0.374	0.744	7.35	14.108
6500.	375.	2	0.01	50.00	0.	0.45	0.432	0.431	0.863	7.80	14.972
7275.	775.	1	0.01	50.00	0.	0.93	0.885	0.891	1.774	8.73	16.746
7625.	350.	1	0.01	50.00	0.	0.42	0.400	0.403	0.802	9.15	17.550
7825.	200.	-4	0.01	50.00	0.	0.24	0.238	0.230	0.468	9.39	18.018
8050.	225.	2	0.01	50.00	0.	0.27	0.259	0.252	0.518	9.64	18.536
8300.	250.	-4	0.01	50.00	0.	0.30	0.297	0.288	0.584	9.96	19.120
8450.	150.	4	0.01	50.00	0.	0.18	0.173	0.173	0.351	10.14	19.471
8650.	200.	3	0.01	50.00	0.	0.24	0.233	0.230	0.463	10.38	19.934
8900.	250.	-1	0.01	50.00	0.	0.30	0.285	0.288	0.573	10.68	20.507
9075.	175.	0	0.01	50.00	0.	0.21	0.200	0.201	0.401	10.89	20.907
9300.	225.	-3	0.01	50.00	0.	0.27	0.262	0.259	0.521	11.14	21.428
9475.	175.	4	0.01	50.00	0.	0.21	0.208	0.201	0.409	11.37	21.837
9825.	350.	2	0.01	50.00	0.	0.42	0.403	0.403	0.804	11.79	22.641
10175.	350.	0	0.01	50.00	0.	0.42	0.392	0.403	0.802	12.21	23.443
10500.	325.	2	0.01	50.00	0.	0.39	0.375	0.374	0.748	12.60	24.191
10625.	125.	-3	0.01	50.00	0.	0.15	0.145	0.144	0.289	12.75	24.480
10875.	250.	0	0.01	50.00	0.	0.30	0.285	0.288	0.573	13.05	25.053
11050.	175.	-1	0.01	50.00	0.	0.21	0.200	0.201	0.401	13.26	25.454
11300.	250.	1	0.01	50.00	0.	0.30	0.285	0.288	0.573	13.54	26.028
11525.	225.	0	0.01	50.00	0.	0.27	0.257	0.259	0.515	13.83	26.543
11800.	275.	-2	0.01	50.00	0.	0.33	0.317	0.314	0.634	14.14	27.177
12298.	498.	0	0.01	50.00	0.	0.60	0.568	0.573	1.140	14.74	28.317
12555.	257.	0	0.01	50.00	95.	0.31	0.304	0.296	0.600	15.07	28.917
12600.	45.	0	0.01	50.00	0.	0.05	0.051	0.052	0.103	15.12	29.020
12900.	300.	-2	0.01	50.00	0.	0.36	0.346	0.345	0.691	15.48	29.711
13300.	400.	-1	0.01	50.00	0.	0.48	0.457	0.460	0.917	15.96	30.628
13650.	350.	-1	0.01	50.00	0.	0.42	0.400	0.403	0.802	16.38	31.430
14475.	825.	1	0.01	50.00	0.	0.99	0.942	0.949	1.891	17.37	33.321
14490.	15.	0	0.01	50.00	0.	0.02	0.017	0.017	0.034	17.39	33.355
14694.	204.	0	0.01	50.00	95.	0.24	0.265	0.235	0.500	17.63	33.855
14875.	181.	0	0.01	50.00	0.	0.22	0.206	0.208	0.414	17.85	34.269
15125.	250.	1	0.01	50.00	0.	0.30	0.285	0.288	0.573	18.15	34.842
15600.	475.	-1	0.01	50.00	0.	0.57	0.542	0.546	1.089	18.72	35.931

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIATION COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
15825.	225.	-2	0.01	50.00	0.	0.27	0.259	0.518	0.917	18.99	36.478
16225.	400.	-1	0.01	50.00	0.	0.48	0.457	0.460	0.917	19.47	37.395
17456.	1231.	0	0.01	50.00	0.	1.48	1.403	1.416	2.819	20.95	40.214
17552.	96.	0	0.01	50.00	110.	0.12	0.117	0.110	0.227	21.06	40.441
17775.	223.	0	0.01	50.00	0.	0.27	0.254	0.256	0.511	21.33	40.952
18550.	775.	0	0.01	50.00	0.	0.93	0.884	0.891	1.775	22.26	42.726
19098.	548.	1	0.01	50.00	0.	0.66	0.626	0.630	1.256	22.92	43.982
19150.	52.	1	0.01	50.00	72.	0.06	0.077	0.060	0.137	22.98	44.119
19186.	36.	-1	0.01	50.00	72.	0.04	0.054	0.041	0.095	23.02	44.214
19350.	164.	-1	0.01	50.00	0.	0.20	0.187	0.189	0.376	23.22	44.590
19620.	270.	1	0.01	50.00	0.	0.32	0.308	0.311	0.619	23.54	45.209
19675.	55.	1	0.01	50.00	110.	0.07	0.067	0.063	0.130	23.61	45.339
19725.	50.	-2	0.01	50.00	110.	0.06	0.061	0.058	0.119	23.67	45.458
20072.	347.	-2	0.01	50.00	0.	0.42	0.400	0.399	0.799	24.09	46.257
20191.	119.	-2	0.01	50.00	110.	0.14	0.146	0.137	0.283	24.23	46.540
20350.	159.	-2	0.01	50.00	0.	0.19	0.183	0.183	0.366	24.42	46.906
20500.	150.	-1	0.01	50.00	0.	0.18	0.171	0.173	0.344	24.60	47.250
21200.	700.	0	0.01	50.00	0.	0.84	0.798	0.805	1.603	25.44	48.853
21398.	198.	0	0.01	50.00	0.	0.24	0.226	0.228	0.453	25.68	49.306
21559.	161.	0	0.01	50.00	110.	0.19	0.195	0.185	0.381	25.87	49.687
21900.	341.	0	0.01	50.00	0.	0.41	0.389	0.392	0.783	26.28	50.468
22500.	600.	-1	0.01	50.00	0.	0.72	0.685	0.690	1.375	27.00	51.843
22675.	175.	-1	0.01	50.00	0.	0.21	0.200	0.201	0.401	27.21	52.244
23725.	1050.	1	0.01	50.00	0.	1.26	1.359	1.208	2.406	28.47	54.650
24075.	350.	-3	0.01	50.00	0.	0.42	0.407	0.403	0.810	28.89	55.460
24500.	425.	3	0.02	50.00	0.	0.51	0.495	0.489	0.983	29.40	56.443
24825.	325.	-2	0.01	50.00	0.	0.39	0.375	0.374	0.748	29.79	57.192
25225.	400.	3	0.03	50.00	0.	0.48	0.466	0.460	0.926	30.27	58.117
25450.	225.	-3	0.01	50.00	0.	0.27	0.262	0.259	0.521	30.54	58.638
25625.	175.	-2	0.01	50.00	0.	0.21	0.202	0.201	0.403	30.75	59.041
26250.	625.	1	0.01	50.00	0.	0.75	0.714	0.719	1.432	31.50	60.473
26550.	300.	-2	0.01	50.00	0.	0.36	0.346	0.345	0.691	31.86	61.164
26875.	325.	0	0.01	50.00	0.	0.39	0.371	0.374	0.744	32.25	61.908
27360.	485.	0	0.01	50.00	0.	0.58	0.563	0.558	1.111	32.83	63.019
27637.	277.	0	0.01	50.00	110.	0.33	0.336	0.339	0.655	33.16	63.673
27732.	95.	0	0.01	50.00	0.	0.11	0.108	0.109	0.218	33.28	63.891
27907.	175.	0	0.01	50.00	110.	0.21	0.206	0.201	0.408	33.49	64.299
28161.	254.	0	0.01	50.00	0.	0.30	0.290	0.292	0.582	33.79	64.880
28275.	114.	0	0.01	50.00	85.	0.14	0.153	0.131	0.284	33.93	65.164
28278.	3.	0	0.01	50.00	85.	0.00	0.004	0.003	0.007	33.93	65.172
28525.	247.	0	0.01	50.00	0.	0.30	0.282	0.284	0.566	34.23	65.737
28598.	73.	-1	0.01	50.00	0.	0.09	0.083	0.084	0.167	34.32	65.904
28660.	62.	-1	0.01	50.00	110.	0.07	0.078	0.071	0.149	34.39	66.054
28714.	54.	-1	0.01	50.00	0.	0.06	0.062	0.062	0.124	34.46	66.178
28767.	53.	-1	0.01	50.00	110.	0.06	0.064	0.061	0.125	34.52	66.303
28775.	9.	-1	0.01	50.00	0.	0.01	0.009	0.009	0.018	34.53	66.321
28918.	143.	0	0.01	50.00	0.	0.17	0.163	0.164	0.327	34.70	66.649
29075.	157.	0	0.01	50.00	110.	0.19	0.185	0.181	0.366	34.89	67.014
29079.	4.	0	0.01	50.00	110.	0.00	0.005	0.005	0.009	34.89	67.023
29299.	220.	0	0.01	50.00	0.	0.26	0.251	0.253	0.504	35.16	67.527
29375.	74.	0	0.01	50.00	110.	0.09	0.096	0.087	0.183	35.25	67.710
29527.	152.	-1	0.01	50.00	110.	0.18	0.191	0.175	0.366	35.43	68.077
29561.	34.	-1	0.01	50.00	0.	0.04	0.039	0.039	0.078	35.47	68.155

DATE : 831228 TIME : 14: 6

ROUTE NO. 2300 IMPROVED

CALCULATION OF AVERAGES FOR A LGT BUS OR A VEHICLE CLASS 6

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KILOM
1982	50.05	35.43	34.12	33.958	68.080	2.303
1983	50.05	35.43	34.12	33.958	68.080	2.303
1984	50.05	35.43	34.12	33.958	68.080	2.303
1985	50.05	35.43	34.12	33.958	68.080	2.303
1986	50.05	35.43	34.12	33.958	68.080	2.303
1987	50.05	35.43	34.12	33.958	68.080	2.303
1988	50.05	35.43	34.12	33.958	68.080	2.303
1989	50.05	35.43	34.12	33.958	68.080	2.303
1990	50.05	35.43	34.12	33.958	68.080	2.303
1991	50.05	35.43	34.12	33.958	68.080	2.303
1992	50.05	35.43	34.12	33.958	68.080	2.303
1993	50.05	35.43	34.12	33.958	68.080	2.303
1994	50.05	35.43	34.12	33.958	68.080	2.303
1995	50.05	35.43	34.12	33.958	68.080	2.303
1996	50.05	35.43	34.12	33.958	68.080	2.303
1997	50.05	35.43	34.12	33.958	68.080	2.303
1998	50.05	35.43	34.12	33.958	68.080	2.303
1999	50.05	35.43	34.12	33.958	68.080	2.303
2000	50.05	35.43	34.12	33.958	68.080	2.303

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ROAD USER COST CALCULATION

ROUTE NO. 2300 IMPROVED

CALCULATION OVER THE YEAR 1982 FOR A MED BUS OR A VEHICLE CLASS 7
PEAK HISTOGRAM

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
175.	175.	-1	0.01	50.00	0.	0.21	0.374	0.334	0.708	0.21	0.708
575.	400.	0	0.01	50.00	0.	0.48	0.856	0.764	1.620	0.69	2.328
800.	225.	0	0.01	50.00	0.	0.27	0.481	0.430	0.911	0.96	3.239
950.	150.	-2	0.01	50.00	0.	0.18	0.323	0.287	0.610	1.14	3.849
1950.	1000.	0	0.01	50.00	0.	1.20	2.140	1.910	4.050	2.34	7.899
2150.	200.	0	0.01	50.00	0.	0.24	0.428	0.382	0.810	2.58	8.709
2625.	475.	0	0.01	50.00	0.	0.57	1.016	0.907	1.924	3.15	10.632
2900.	275.	0	0.01	50.00	0.	0.33	0.588	0.525	1.114	3.48	11.746
3725.	825.	0	0.01	50.00	0.	0.99	1.765	1.576	3.341	4.47	15.087
4780.	1055.	0	0.01	50.00	0.	1.27	2.258	2.015	4.273	5.74	19.360
4900.	120.	0	0.01	50.00	87.	0.14	0.309	0.282	0.591	5.88	19.951
5080.	180.	3	0.01	50.00	87.	0.22	0.431	0.344	0.775	6.10	20.726
5300.	220.	3	0.02	37.08	0.	0.36	0.623	0.442	1.065	6.45	21.791
5675.	375.	-3	0.01	50.00	0.	0.45	0.833	0.715	1.548	6.90	23.339
5800.	125.	2	0.01	50.00	0.	0.15	0.269	0.232	0.501	7.05	24.040
6125.	325.	0	0.01	50.00	0.	0.39	0.626	0.521	1.147	7.44	25.187
6500.	375.	2	0.01	42.89	0.	0.52	1.163	0.722	1.885	7.97	27.072
7275.	775.	1	0.01	50.00	0.	0.93	1.654	1.480	3.135	8.90	30.207
7625.	350.	1	0.01	50.00	0.	0.42	0.747	0.652	1.416	9.32	31.623
7825.	200.	-4	0.01	50.00	0.	0.24	0.473	0.392	0.865	9.56	32.488
8050.	225.	2	0.01	50.00	0.	0.27	0.485	0.430	0.914	9.83	33.402
8300.	250.	-4	0.01	50.00	0.	0.30	0.521	0.428	1.059	10.13	34.461
8450.	150.	4	0.01	50.00	0.	0.18	0.355	0.297	0.641	10.31	35.102
8650.	200.	3	0.01	38.47	0.	0.31	0.503	0.385	1.139	10.62	36.241
8900.	250.	-1	0.01	50.00	0.	0.30	0.534	0.428	1.011	10.92	37.252
9075.	175.	0	0.01	50.00	0.	0.21	0.375	0.334	0.709	11.13	38.161
9300.	225.	-3	0.01	50.00	0.	0.27	0.503	0.430	0.933	11.40	39.094
9475.	175.	4	0.01	50.00	0.	0.21	0.414	0.334	0.748	11.61	39.842
9825.	350.	2	0.01	42.62	0.	0.42	1.111	0.672	1.783	12.10	41.625
10175.	350.	0	0.01	50.00	0.	0.42	0.742	0.662	1.418	12.52	43.043
10500.	325.	2	0.01	42.28	0.	0.46	1.058	0.622	1.681	12.91	44.724
10625.	125.	-3	0.01	50.00	0.	0.15	0.272	0.232	0.518	13.13	45.242
10875.	250.	0	0.01	50.00	0.	0.30	0.535	0.428	1.012	13.43	46.254
11050.	175.	0	0.01	50.00	0.	0.21	0.374	0.334	0.708	13.64	46.962
11300.	250.	1	0.01	50.00	0.	0.30	0.534	0.428	1.011	13.94	47.973
11525.	225.	0	0.01	50.00	0.	0.27	0.481	0.430	0.911	14.21	48.884
11800.	275.	-2	0.01	50.00	0.	0.33	0.592	0.525	1.118	14.54	49.802
12228.	428.	0	0.01	50.00	0.	0.60	1.056	0.951	2.017	15.14	51.819
12555.	257.	0	0.01	50.00	75.	0.51	0.639	0.421	1.129	15.45	52.948
13500.	45.	0	0.01	50.00	0.	0.05	0.095	0.085	0.180	15.50	53.128
12900.	300.	-2	0.01	50.00	0.	0.36	0.646	0.573	1.219	15.85	54.347
13300.	400.	-1	0.01	50.00	0.	0.48	0.854	0.764	1.618	16.34	56.004
13650.	350.	-1	0.01	50.00	0.	0.42	0.747	0.662	1.416	16.76	57.420
14475.	825.	1	0.01	50.00	0.	0.99	1.761	1.576	3.337	17.25	60.757
14490.	15.	0	0.01	50.00	0.	0.02	0.032	0.022	0.054	17.27	61.017
14624.	204.	0	0.01	50.00	95.	0.24	0.507	0.320	0.827	18.02	61.844
14875.	181.	0	0.01	50.00	0.	0.22	0.397	0.346	0.743	18.23	62.587
15125.	250.	1	0.01	50.00	0.	0.30	0.534	0.428	1.011	18.53	63.608
15600.	475.	-1	0.01	50.00	0.	0.57	1.014	0.907	1.921	19.10	65.529

CHAINAGE	INTERIM DISTANCE	GRADE (%)	VCR	SPEED	CURVE SPEED	TIME THIS DISTANCE	VARIABLE COST	FIXED COST	TOTAL COST	CUMULATIVE TIME	CUMULATIVE TOTAL COST
15825.	225.	-2	0.01	50.00	0.	0.27	0.485	0.430	0.914	19.37	66.494
16225.	400.	-1	0.01	50.00	0.	0.48	0.854	0.764	1.618	19.85	68.111
17456.	1231.	0	0.01	50.00	0.	1.48	2.634	2.351	4.984	21.33	73.097
17552.	96.	0	0.01	50.00	110.	0.12	0.222	0.183	0.405	21.44	73.502
17775.	223.	0	0.01	50.00	0.	0.27	0.477	0.426	0.903	21.71	74.406
18550.	775.	0	0.01	50.00	0.	0.93	1.658	1.480	3.139	22.64	77.544
19098.	548.	1	0.01	50.00	0.	0.68	1.170	1.047	2.216	23.30	79.761
19150.	52.	1	0.01	50.00	72.	0.06	0.151	0.099	0.250	23.36	80.011
19186.	36.	-1	0.01	50.00	72.	0.04	0.104	0.069	0.173	23.41	80.184
19350.	164.	-1	0.01	50.00	0.	0.20	0.350	0.313	0.663	23.60	80.847
19620.	270.	1	0.01	50.00	0.	0.32	0.576	0.516	1.092	23.93	81.939
19675.	55.	1	0.01	50.00	110.	0.07	0.127	0.105	0.232	23.99	82.171
19725.	50.	-2	0.01	50.00	110.	0.06	0.116	0.096	0.212	24.05	82.383
20072.	347.	-2	0.01	50.00	0.	0.42	0.747	0.663	1.410	24.47	83.793
20191.	119.	-2	0.01	50.00	110.	0.14	0.277	0.277	0.504	24.61	84.297
20350.	159.	-2	0.01	50.00	0.	0.19	0.342	0.304	0.646	24.80	84.943
20500.	150.	-1	0.01	50.00	0.	0.18	0.320	0.297	0.607	24.98	85.550
21200.	700.	0	0.01	50.00	0.	0.84	1.498	1.367	2.865	25.82	88.415
21398.	198.	0	0.01	50.00	0.	0.24	0.424	0.378	0.802	26.06	89.217
21559.	161.	0	0.01	50.00	110.	0.19	0.372	0.308	0.680	26.25	89.897
21900.	341.	0	0.01	50.00	0.	0.41	0.730	0.653	1.383	26.64	91.280
22500.	600.	-1	0.01	50.00	0.	0.72	1.281	1.146	2.427	27.38	93.707
22675.	175.	-1	0.01	50.00	0.	0.21	0.374	0.334	0.708	27.59	94.415
23725.	1050.	1	0.01	50.00	0.	1.26	2.241	2.006	4.247	28.85	98.662
24075.	350.	-3	0.01	50.00	0.	0.42	0.782	0.669	1.451	29.27	100.113
24500.	425.	3	0.02	39.21	0.	0.65	1.250	0.874	2.124	29.92	102.237
24825.	325.	-2	0.01	50.00	0.	0.39	0.700	0.621	1.321	30.31	103.558
25225.	400.	3	0.03	29.29	0.	0.82	1.527	0.907	2.434	31.13	105.992
25450.	225.	-3	0.01	50.00	0.	0.27	0.503	0.430	0.933	31.40	106.925
25625.	175.	-2	0.01	50.00	0.	0.21	0.377	0.334	0.711	31.61	107.636
26250.	625.	1	0.01	50.00	0.	0.75	1.334	1.194	2.528	32.36	110.164
26550.	300.	-2	0.01	50.00	0.	0.36	0.646	0.573	1.219	32.72	111.383
26875.	325.	0	0.01	50.00	0.	0.39	0.676	0.621	1.296	33.11	112.679
27360.	485.	0	0.01	50.00	0.	0.58	1.048	0.926	1.974	33.69	114.653
27637.	277.	0	0.01	50.00	110.	0.33	0.641	0.529	1.170	34.03	115.823
27732.	95.	0	0.01	50.00	0.	0.11	0.206	0.181	0.386	34.14	116.209
27907.	175.	0	0.01	50.00	110.	0.21	0.389	0.334	0.723	34.35	116.932
28161.	254.	0	0.01	50.00	0.	0.30	0.544	0.483	1.029	34.66	117.961
28275.	114.	0	0.01	50.00	85.	0.14	0.293	0.218	0.511	34.79	118.472
28278.	3.	0	0.01	50.00	85.	0.00	0.008	0.006	0.013	34.80	118.485
28525.	247.	0	0.01	50.00	0.	0.30	0.529	0.472	1.000	35.09	119.485
28598.	73.	-1	0.01	50.00	0.	0.09	0.156	0.139	0.295	35.18	119.780
28660.	62.	-1	0.01	50.00	110.	0.07	0.148	0.118	0.266	35.25	120.046
28714.	54.	-1	0.01	50.00	0.	0.06	0.115	0.103	0.218	35.32	120.264
28767.	53.	-1	0.01	50.00	110.	0.06	0.122	0.101	0.224	35.38	120.488
28775.	8.	-1	0.01	50.00	0.	0.01	0.017	0.015	0.032	35.39	120.520
28918.	143.	0	0.01	50.00	0.	0.17	0.306	0.273	0.579	35.56	121.099
29075.	157.	0	0.01	50.00	110.	0.19	0.349	0.300	0.649	35.75	121.748
29079.	4.	0	0.01	50.00	110.	0.00	0.009	0.008	0.017	35.76	121.765
29299.	220.	0	0.01	50.00	0.	0.26	0.471	0.420	0.891	36.02	122.656
29375.	76.	0	0.01	50.00	110.	0.09	0.182	0.143	0.327	36.11	122.983
29527.	152.	-1	0.01	50.00	110.	0.18	0.324	0.290	0.614	36.29	123.597
29561.	34.	-1	0.01	50.00	0.	0.04	0.073	0.065	0.138	36.34	123.735

DATE : 831228

TIME : 1419

ROUTE NO. 2300

IMPROVED

CALCULATION OF AVERAGES FOR A MED BUS

OR A VEHICLE CLASS 7

YEAR	AVERAGE SPEED	TIME (MIN)	VARIABLE COST (B)	FIXED COST (B)	TOTAL COST (B)	AVERAGE COST PER KMTR
1982	48.87	36.30	66.97	56.648	123.617	4.182
1983	48.87	36.30	66.97	56.648	123.617	4.182
1984	48.87	36.30	66.97	56.648	123.617	4.182
1985	48.87	36.30	66.97	56.648	123.617	4.182
1986	48.87	36.30	66.97	56.648	123.617	4.182
1987	48.87	36.30	66.97	56.648	123.617	4.182
1988	48.87	36.30	66.97	56.648	123.617	4.182
1989	48.87	36.30	66.97	56.648	123.617	4.182
1990	48.87	36.30	66.97	56.648	123.617	4.182
1991	48.87	36.30	66.97	56.648	123.617	4.182
1992	48.87	36.30	66.97	56.648	123.617	4.182
1993	48.87	36.30	66.97	56.648	123.617	4.182
1994	48.87	36.30	66.97	56.648	123.617	4.182
1995	48.87	36.30	66.97	56.648	123.617	4.182
1996	48.87	36.30	66.97	56.648	123.617	4.182
1997	48.87	36.30	66.97	56.648	123.617	4.182
1998	48.87	36.30	66.97	56.648	123.617	4.182
1999	48.87	36.30	66.97	56.648	123.617	4.182
2000	48.87	36.30	66.97	56.648	123.617	4.182

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ROUTE NO. 2300 IMPROVED

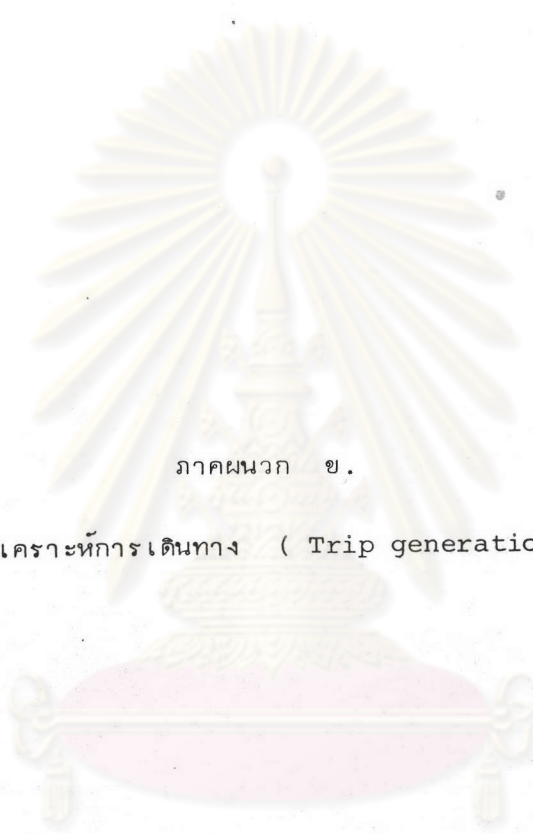
VEHICLE OPERATING COSTS FOR LINK

VEHICLE TYPE	YEAR	SPEED (KPH)	TIME (MINS)	RUNNING COST (B)	FIXED COST (B)	TOTAL (B)
MOTOR CYCLE	1982	50.05	35.43	8.97	7.09	16.05
	1985	50.05	35.43	8.97	7.09	16.05
	1988	50.05	35.43	8.97	7.09	16.05
	1991	50.05	35.43	8.97	7.09	16.05
	1994	50.05	35.43	8.97	7.09	16.05
	1997	50.05	35.43	8.97	7.09	16.05
2000	50.05	35.43	8.97	7.09	16.05	
PASSENGER CAR	1982	60.06	29.53	29.96	38.98	68.93
	1985	60.06	29.53	29.96	38.98	68.93
	1988	60.06	29.53	29.96	38.98	68.93
	1991	60.06	29.53	29.96	38.98	68.93
	1994	60.06	29.53	29.96	38.98	68.93
	1997	60.06	29.53	29.96	38.98	68.93
2000	60.06	29.53	29.96	38.98	68.93	
LIGHT TRUCK	1982	60.06	29.53	37.85	20.08	57.93
	1985	60.06	29.53	37.85	20.08	57.93
	1988	60.06	29.53	37.85	20.08	57.93
	1991	60.06	29.53	37.85	20.08	57.93
	1994	60.06	29.53	37.85	20.08	57.93
	1997	60.06	29.53	37.85	20.08	57.93
2000	60.06	29.53	37.85	20.08	57.93	
MED TRUCK	1982	48.87	36.30	94.22	103.74	197.96
	1985	48.87	36.30	94.22	103.74	197.96
	1988	48.87	36.30	94.22	103.74	197.96
	1991	48.87	36.30	94.22	103.74	197.96
	1994	48.87	36.30	94.22	103.74	197.96
	1997	48.87	36.30	94.22	103.74	197.96
2000	48.87	36.30	94.22	103.74	197.96	
HUV TRUCK	1982	53.01	33.46	183.38	120.58	303.96
	1985	53.01	33.46	183.38	120.58	303.96
	1988	53.01	33.46	183.38	120.58	303.96
	1991	53.01	33.46	183.38	120.58	303.96
	1994	53.01	33.46	183.38	120.58	303.96
	1997	53.01	33.46	183.38	120.58	303.96
2000	53.01	33.46	183.38	120.58	303.96	
LGT BUS	1982	50.05	35.43	34.12	33.96	68.08
	1985	50.05	35.43	34.12	33.96	68.08
	1988	50.05	35.43	34.12	33.96	68.08
	1991	50.05	35.43	34.12	33.96	68.08
	1994	50.05	35.43	34.12	33.96	68.08
	1997	50.05	35.43	34.12	33.96	68.08
2000	50.05	35.43	34.12	33.96	68.08	

MEI BUS	1982	48.87	36.30	66.97	56.65	123.62
	1985	48.87	36.30	66.97	56.65	123.62
	1988	48.87	36.30	66.97	56.65	123.62
	1991	48.87	36.30	66.97	56.65	123.62
	1994	48.87	36.30	66.97	56.65	123.62
	1997	48.87	36.30	66.97	56.65	123.62
	2000	48.87	36.30	66.97	56.65	123.62



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ภาคผนวก ข.

ผลการวิเคราะห์การเดินทาง (Trip generation)

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

DEFAULT SPACE ALLOCATION... ALLOWS FOR... 151 TRANSFORMATIONS
 WORKSPACE 176212 BYTES 507 RECORD VALUES + 143 VARIABLES
 TRANSPACE 15172 BYTES 2423 IF/COMPUTE OPERATIONS

VARIABLE LIST PRI,POP1,POP2,POP,PRIC,PRIS,TIME,CAM,CAP,CAT,TRERE
 INPUT MEDIUM CAR
 INPUT FORMAT F1(5.0),F2.0,F1.0,4F2.0,2F1.0,F2.0

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
PRI	F 5.0	1	1- 5
POP1	F 2.0	1	6- 7
POP2	F 1.0	1	8- 9
POP	F 2.0	1	9- 10
PRIC	F 2.0	1	11- 12
PRIS	F 2.0	1	13- 14
TIME	F 2.0	1	15- 16
CAM	F 1.0	1	17- 17
CAP	F 1.0	1	18- 18
CAT	F 1.0	1	19- 19
TRERE	F 2.0	1	20- 21

THE INPUT FORMAT PROVIDES FOR 11 VARIABLES. 11 WILL BE READ
 IT PROVIDES FOR 1 RECORDS (100000) PER CASE. A MAXIMUM OF 21 COLUMNS ARE USED ON A RECORD.

N OF CASES 33
 REGRESSION VARIABLES = PRI,POP1,POP2,POP,PRIC,PRIS,TIME,CAM,
 CAP,CAT,TRERE/
 REGRESSION = TRERE WITH PRI,POP1,POP2,POP,PRIC,
 PRIS,TIME,CAM,CAP,CAT(1)
 STATISTICS ALL

***** REGRESSION PROBLEM REQUIRES 2640 BYTES WORKSPACE, NOT INCLUDING RESIDUALS *****

READ INPUT DATA

STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

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FILE NCKNAME (CREATION DATE = 14/06/92)

VARIABLE	MEAN	STANDARD DEV	CASES
PRI	29372.5677	20732.4229	99
PCP1	4.3724	1.9576	99
PCP2	1.3097	1.3337	99
PCP	6.1124	1.3552	99
PRIC	47.9839	0.3490	99
PRIS	24.6742	3.2779	99
TIME	15.2697	0.1752	99
CAM	0.2534	0.5119	99
CAP	0.0225	0.1471	99
CAT	7.0447	0.2034	99
TRFRE	19.5393	19.1316	99

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CORRELATION COEFFICIENTS

A VALUE OF 99.9999 IS PRINTED
 IF A COEFFICIENT CANNOT BE COMPUTED.

	PRI	POP1	POP2	POP	PRIC	PRIS	TIME	CAM	CAP	CAT	TPRE
PRI	1.00000	0.18867	-0.02274	0.13225	-0.12595	-0.34199	0.10910	0.15056	0.23433	0.44077	0.51175
POP1	0.18867	1.00000	-0.41268	0.75256	-0.17517	-0.09190	-0.03776	0.23727	-0.14280	-0.11791	0.20742
POP2	-0.02274	-0.41268	1.00000	0.23781	0.26115	-0.07593	-0.06496	-0.17587	-0.03512	0.11250	-0.03723
POP	0.13225	0.75256	0.23781	1.00000	0.00925	-0.06679	-0.03863	0.12464	-0.02142	-0.04261	0.29720
PRIC	-0.12595	-0.17517	0.26115	0.00925	1.00000	0.24706	-0.52784	-0.10716	-0.00055	0.33330	0.05227
PRIS	-0.34199	-0.09190	-0.06679	-0.06679	0.24706	1.00000	-0.04322	0.07044	-0.07789	-0.07914	-0.16027
TIME	0.10910	-0.03776	-0.06496	-0.03863	-0.52784	-0.04322	1.00000	-0.10465	0.22071	-0.04471	-0.25560
CAM	0.15056	0.23727	-0.17517	0.12464	-0.10716	0.07044	-0.10465	1.00000	0.22071	-0.11014	0.30071
CAP	0.23433	-0.03512	-0.03512	-0.03142	-0.00055	-0.07789	0.22071	0.22071	1.00000	-0.02299	0.04741
CAT	0.44077	-0.11791	0.11250	-0.04261	0.03330	-0.07914	-0.04471	-0.11014	-0.02299	1.00000	0.28056
TPRE	0.51175	0.20742	-0.03723	0.29720	0.05227	-0.16027	-0.25560	0.30071	0.04741	0.28056	1.00000

ศูนย์วิทยทรัพยากร
 จุฬาลงกรณ์มหาวิทยาลัย

FILE NCNAME (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION ***** VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TFFPE

VARIABLE(S) ENTERED ON STEP NUMBER 1.. PRI

		ANALYSIS OF VARIANCE		DF	SUM OF SQUARES	MEAN SQUARE	F
MULTIPLE R	0.51105	REGRESSION	17	8456.41615	8456.41615	30.75435	
R SQUARE	0.26119	RESIDUAL	87	23971.69621	274.86203		
ADJUSTED R SQUARE	0.25268						
STANDARD ERROR	16.58198						

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
PRI	0.47133397-03	0.51105	0.00004	30.755
(CONSTANT)	4.675133			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLEFANCE	F
POP1	0.32434	0.24829	0.24443	1.377
POP2	-0.02782	-0.02422	0.99257	0.252
POP	0.30419	0.24797	0.06479	11.847
PPIC	0.11365	0.13811	0.38474	1.472
PRIS	0.01572	0.01719	0.38373	0.225
TIME	-0.31511	-0.36441	0.99010	13.162
CAN	0.24720	0.29514	0.28285	7.511
CAP	-0.08108	-0.09169	0.24495	0.722
CAT	0.19275	0.20129	0.30572	3.622

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14/16/82

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FILE: ACNAME (CREATION DATE = 14/05/82)

***** MULTIPLE REGRESSION *****

VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TIME

VARIABLE(S) ENTERED ON STEP NUMBER 2.. TIME

MULTIPLE R	0.59941	ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
R SQUARE	0.35929	REGRESSION	1	11633.00619	5816.54909	24.11293
ADJUSTED R SQUARE	0.34439	RESIDUAL	24	21745.01626	241.22112	
STANDARD ERROR	15.53129					

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
PRI	0.50341340-13	0.54543	0.00008	39.457
TIME	-0.9756352	-0.31511	0.26895	13.169
(CONSTANT)	19.61575			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
POP1	0.28692	0.25049	0.26072	11.204
POP2	-0.04069	-0.15972	0.22555	0.212
POP	0.27216	0.33225	0.25426	10.567
PRIC	-0.06173	-0.06529	0.71173	0.261
PRIS	0.01172	0.11395	0.82360	0.174
CAM	0.21219	0.25089	0.26365	6.209
CAP	0.00720	0.00941	0.87422	0.006
CAT	0.15317	0.17641	0.22721	2.737

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จุฬาลงกรณ์มหาวิทยาลัย

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FILE NCPM (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION ***** VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TPFR

VARIABLE(S) ENTERED ON STEP NUMBER 3.. POP1

		ANALYSIS OF VARIANCE				
		DF	SUM OF SQUARES	MEAN SQUARE	F	
MULTIPLE R	0.56281	2.	14111.40145	4727.13382		22.08127
R SQUARE	0.43799	REGRESSION				
ADJUSTED R SQUARE	0.41816	RESIDUAL	85.	18106.71091	214.07895	
STANDARD ERROR	14.53144					

VARIABLES IN THE EQUATION					VARIABLES NOT IN THE EQUATION				
VARIABLE	B	BETA	STD ERROR B	F	VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
PRI	0.45131650-03	0.43952	0.00009	34.455	POP2	0.09467	0.11475	0.81361	1.117
TIME	-0.9215142	-0.29743	0.25276	13.188	POP	0.13117	0.11475	0.42677	1.117
PCP1	2.914593	0.29672	0.31591	11.004	PPIC	0.01192	0.01313	0.48177	0.714
(CONSTANT)	3.132337				PRIS	0.00798	0.01001	0.38244	0.209
					CAM	0.15921	0.20285	0.02229	3.605
					CAP	0.03735	0.04637	0.36510	0.191
					CAT	0.24610	0.28479	0.25256	7.414

VARIABLE(S) ENTERED ON STEP NUMBER 4.. CAT

		ANALYSIS OF VARIANCE				
		DF	SUM OF SQUARES	MEAN SQUARE	F	
MULTIPLE R	0.63540	4.	15657.22321	3914.30590		17.66410
R SQUARE	0.43357	REGRESSION				
ADJUSTED R SQUARE	0.45898	RESIDUAL	84.	16720.38915	199.05920	
STANDARD ERROR	14.10890					

VARIABLES IN THE EQUATION					VARIABLES NOT IN THE EQUATION				
VARIABLE	B	BETA	STD ERROR B	F	VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
PRI	0.33932620-03	0.26913	0.00071	16.037	POP2	0.08630	0.10870	0.81753	0.997
TIME	-0.3393424	-0.27128	0.24652	11.619	POP	0.11970	0.10370	0.42584	0.997
PCP1	3.335744	0.33916	0.90797	16.375	PPIC	0.01164	0.01257	0.48107	0.715
CAT	22.65675	0.24520	3.32023	7.414	PRIS	-0.01264	-0.01644	0.37425	0.022
(CONSTANT)	5.845428				CAM	0.19314	0.26208	0.99734	6.761
					CAP	0.07569	0.07728	0.36228	0.205

FILE NCMAME (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION ***** VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TRPC

VARIABLE(S) ENTERED ON STEP NUMBER 5.. CA1

MULTIPLE R	0.72060	ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
R SQUARE	0.51926	REGRESSION	5.	14912.71259	2982.54252	17.03077
ADJUSTED R SQUARE	0.49030	RESIDUAL	92.	15565.39977	169.19999	
STANDARD ERROR	13.69434					

VARIABLES IN THE EQUATION

VARIABLE	B	BETA	STD ERROR B	F
PRI	0.20500157-03	0.33044	0.00008	13.027
TIME	-0.7621095	-0.24615	0.24132	0.973
POP1	2.987671	0.30391	0.79917	14.011
CAT	25.92739	0.20160	8.19320	10.028
CA1	7.462435	0.17014	3.00636	6.161
(CONSTANT)	6.022943			

VARIABLES NOT IN THE EQUATION

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
POP2	0.10357	0.14096	0.30026	1.660
POP	0.15043	0.14096	0.42150	1.660
PPIC	0.07505	0.03768	0.63611	0.677
PPIS	-0.03207	-0.14210	0.36927	0.157
CAP	0.02585	0.03443	0.79040	0.097

VARIABLE(S) ENTERED ON STEP NUMBER 6.. PCP2

MULTIPLE R	0.72710	ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
R SQUARE	0.52830	REGRESSION	6.	17121.54959	2853.59166	15.02733
ADJUSTED R SQUARE	0.49430	RESIDUAL	92.	15256.56377	165.83214	
STANDARD ERROR	13.64022					

VARIABLES IN THE EQUATION

VARIABLE	B	BETA	STD ERROR B	F
PRI	0.20315400-03	0.33304	0.00008	12.785
TIME	-0.7292352	-0.23554	0.24172	0.903
POP1	3.419114	0.34767	0.86266	16.709
CAT	25.72432	0.21043	8.15243	9.950
CA1	7.853574	0.20257	3.00932	7.808
PCP2	1.655357	0.10857	1.20722	0.560
(CONSTANT)	0.9277669			

VARIABLES NOT IN THE EQUATION

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
POP2	0.02000	0.00000	-0.00000	0.00000
PPIC	0.15433	0.16275	0.41267	0.327
PPIS	-0.03077	-0.14102	0.36810	0.127
CAP	0.03052	0.03652	0.78952	0.127

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FILE NNAME (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION ***** VARIABLE LIST 1
REGRESSION LIST 1

DEPENDENT VARIABLE.. TRFR

VARIABLE(S) ENTERED ON STEP NUMBER 7.. PRIC

		ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
MULTIPLE R	0.72846	REGRESSION	7.	17191.62635	2454.51812	13.03777
R SQUARE	0.53066	RESIDUAL	92.	15126.48551	164.52635	
ADJUSTED R SQUARE	0.47009					
STANDARD ERROR	13.69711					

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
PRIC	0.29816440-03	0.32335	0.30078	12.690
TIME	-0.6365457	-0.20562	0.29277	4.729
PCP1	3.463742	0.25224	0.26997	16.257
CAT	25.94374	0.28111	8.19527	10.022
CAM	3.295555	0.22117	3.11739	7.165
PCP2	1.424197	0.09941	1.23422	1.332
PPIC	0.3149443	0.05499	0.55655	1.320
(CONSTANT)	-13.56599			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLEANCE	F
POP	0.00000	0.00000	-0.00000	0.00000
PST5	-0.04334	-0.06326	0.79755	0.321
CAP	0.02232	0.12095	0.76973	0.071

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จุฬาลงกรณ์มหาวิทยาลัย

FILE NNAME (CREATION DATE = 14/06/33)

***** MULTIPLE REGRESSION ***** VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TRPE

VARIABLE(S) ENTERED ON STEP NUMBER 1.. PRIS

		ANALYSIS OF VARIANCE		DF	SUM OF SQUARES	MEAN SQUARE	F
MULTIPLE R	0.72975	REGRESSION	1	17242.44379	17242.44379	1155.20547	11.39100
R SQUARE	0.53253	RESIDUAL	10	1525.56857	152.556857	199.19536	
ADJUSTED R SQUARE	0.48579						
STANDARD ERROR	13.75435						

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
PRI	0.27992720-05	0.303 9	0.00009	7.467
TIME	-0.6053115	-0.17550	0.29916	4.094
PCP1	3.482321	0.354 6	0.87417	15.973
CAT	26.52973	0.213 7	8.29445	10.230
CAM	9.592620	0.22929	3.17594	7.315
PCP2	1.363160	0.03557	1.24222	1.213
PRIC	0.4162911	0.07249	0.58679	1.533
PPIS	-0.2857792	-0.04894	0.59405	0.321
(CONSTANT)	-10.72639			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
POP	0.00000	0.00000	0.00000	-1.00000
CAP	0.02069	0.02650	0.76675	0.255

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FILE ACNAME (CREATION DATE = 14/06/77)

***** MULTIPLE REGRESSION ***** VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TRPRE

VARIABLE(S) ENTERED ON STEP NUMBER 3.. CAP

		ANALYSIS OF VARIANCE		DF	SUM OF SQUARES	MEAN SQUARE	F
MULTIPLE R	0.72937	REGRESSION	9.	1753.06882	194.78542	11.01277	
R SQUARE	0.53236	RESIDUAL	76.	15125.04354	197.69855		
ADJUSTED R SQUARE	0.47964						
STANDARD ERROR	13.83677						

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
PRI	0.27515430-03	0.27812	0.00000	3.796
TIME	-0.6296378	-0.20354	0.31916	3.916
PCP1	3.517667	0.35771	0.39174	15.561
CAT	24.75016	0.29057	3.39617	10.151
CAM	3.370433	0.23327	3.33213	6.310
PCP2	1.399153	0.09676	1.25250	1.229
PRIC	0.3923110	0.06870	0.59993	0.429
PRIS	-0.2792552	-0.04772	0.50731	0.302
CAP	2.662319	0.02049	11.30123	0.055
(CONSTANT)	-0.570136			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
POP	0.00000	0.00000	-0.00000	0.00000

F-LEVEL OR TOLERANCE-LEVEL INSUFFICIENT FOR FURTHER COMPUTATION
STATISTICS WHICH CANNOT BE COMPUTED ARE PRINTED AS ALL NINES.

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FILE NNAME (CREATION DATE = 14/04/83)

***** MULTIPLE REGRESSION *****

VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TREE

SUMMARY TABLE

VARIABLE	MULTIPLE R	R SQUARE	RSD CHANGE	SIMPLE R	B	BETA
PRY	0.51105	0.26119	0.26119	0.51105	0.27515477-03	0.22312
TIME	0.59941	0.35929	0.10810	-0.25560	-0.6296399	-0.20236
PCP1	0.66191	0.43799	0.07470	0.29042	2.517667	0.26771
CAT	0.65510	0.43257	0.04559	0.23056	26.75016	0.20057
CAM	0.72061	0.51326	0.08563	0.71371	3.370432	0.22237
PCP2	0.72717	0.52980	0.01954	-0.03223	1.299152	0.19696
PRIC	0.72846	0.53066	0.01184	0.05327	0.3923110	0.06850
PRIS	0.72975	0.53252	0.01199	-0.16037	-0.2702552	-0.04772
CAP	0.72317	0.53086	0.00031	0.04241	0.662318	0.02069
(CONSTANT)					-0.570136	

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STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

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PAGE 12

ELAPSED TIME REQUIRED.. 18.62 SECONDS

FINISH

NORMAL END OF JOB.
11 CONTROL CARDS WERE PROCESSED.
0 ERRORS WERE DETECTED.



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STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

14/06/93

PAGE

SPSS FOR DOS/360, VERSION 4, RELEASE 7.2

DECEMBER 5, 1977

DEFAULT SPACE ALLOCATION.. WORKSPACE 136212 BYTES TRANSFACE 15172 BYTES

ALLOWS FOR.. 151 TRANSFORMATIONS 607 RECORD VALUES + 143 VARIABLES 2428 IF/COMPUTE OPERATIONS

VARIABLE LIST PRI, POP1, POP2, POP, PRIC, PRIS, TIME, CAM, CAP, CAT, TPRE

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

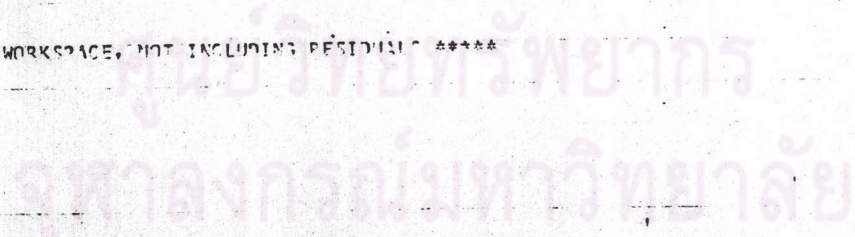
Table with 4 columns: VARIABLE, FORMAT, RECORD, COLUMNS. Lists variables like PRI, POP1, POP2, POP, PRIC, PRIS, TIME, CAM, CAP, CAT, TPRE and their corresponding column ranges.

THE INPUT FORMAT PROVIDES FOR 11 VARIABLES. IT PROVIDES FOR 1 RECORDS ('CARDS') PER CASE.

N OF CASES 9 REGRESSION VARIABLES = PRI, POP1, POP2, POP, PRIC, PRIS, TIME, CAM, CAP, CAT, TPRE/ REGRESSION = TPRE WITH PRI, POP1, POP2, POP, PRIC, PRIS, TIME, CAM, CAP, CAT(1)/ STATISTICS ALL

***** REGRESSION PROBLEM REQUIRES 2640 BYTES WORKSPACE, NOT INCLUDING RESIDUALS *****

READ INPUT DATA



STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

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FILE MNAME (CREATION DATE = 4/05/93)

VARIABLE	MEAN	STANDARD DEV	CASES
PRI	29549.0000	19797.7100	9
PCP1	4.2222	0.4410	9
PCP2	1.6667	0.5000	9
PCP	5.2222	1.3961	9
PPIC	43.4444	3.1104	9
PRIS	31.0000	10.4234	9
TIME	22.1111	27.3173	9
CAM	26.6667	20.3667	9
CAP	0.3889	1.3223	9
CAT	0.4444	0.3270	9
TRFRE	15.3333	3.5113	9

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FILE NCNAME (CREATION DATE = 14/05/83)

CORRELATION COEFFICIENTS

A VALUE OF 99.99999 IS PRINTED
IF A COEFFICIENT CANNOT BE COMPUTED.

	PR1	PCP1	PCP2	PCP	PRIC	PRIS	TIME	CAM	CAP	CAT	TRFRE
PR1	1.00000	-0.09731	-0.37744	0.34174	-0.32239	-0.28163	-0.03500	0.26109	0.23094	0.00941	0.35727
PCP1	-0.09731	1.00000	-0.75593	-0.53476	0.32175	0.65655	0.59800	0.77696	0.41177	-0.47809	-0.25160
PCP2	-0.37744	-0.75593	1.00000	0.59743	-0.20350	-0.47608	-0.62016	-0.75262	-0.72727	0.62746	0.44507
PCP	0.04174	-0.63436	0.51743	1.00000	-0.27535	-0.26533	-0.24174	-0.25965	-0.01120	0.27159	0.63107
PRIC	-0.29233	0.33836	-0.20550	-0.27605	1.00000	0.01393	0.72976	0.03781	0.70320	-0.22765	-0.47157
PRIS	-0.23163	0.65655	-0.47608	-0.26533	0.01393	1.00000	0.89615	0.22258	0.21167	-0.26627	-0.66467
TIME	-0.03500	0.59800	-0.62016	-0.24174	0.72976	0.89615	1.00000	0.17343	0.20457	-0.42124	-0.78461
CAM	0.26109	0.72696	-0.75262	-0.25965	0.03781	0.22058	0.17343	1.00000	0.20720	-0.48755	0.27456
CAP	0.23094	0.41177	-0.72727	-0.01120	0.70320	0.21167	0.20457	0.20720	1.00000	-0.45997	-0.64579
CAT	0.00941	-0.47809	0.62746	0.27159	-0.22765	-0.26627	-0.42124	-0.48755	-0.45997	1.00000	0.39535
TRFRE	0.35727	-0.25160	0.44507	0.63107	-0.47157	-0.66467	-0.78461	0.27456	-0.64579	0.39535	1.00000

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FILE Ncname (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION ***** VARIABLE LIST 1
REGRESSION LIST 1

DEPENDENT VARIABLE.. TRFE

VARIABLE(S) ENTERED ON STEP NUMBER 1.. TIME

MULTIPLE R		ANALYSIS OF VARIANCE		MEAN SQUARE		F
R SQUARE	0.79663	REGRESSION	SUM OF SQUARES	250.27325	250.27325	11.24578
ADJUSTED R SQUARE	0.56442	RESIDUAL	215.72175	20.81739		
STANDARD ERROR	5.53134					

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
TIME	-0.4133774	-0.78669	0.12276	11.246
(CONSTANT)	24.43462			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
PR1	0.32014	0.53447	0.32877	2.328
PR01	0.17411	0.22585	0.44122	0.222
PR02	-0.06346	-0.09608	0.41527	0.044
PR0	-0.97061	-0.52932	0.11214	2.322
PR1C	0.21512	0.23996	0.16949	1.744
PR1S	0.20472	0.14715	0.10621	0.132
CAM	0.21753	0.34710	0.26991	0.421
CAP	0.36220	0.25012	0.13175	0.401
CAT	1.06429	0.20542	0.22125	0.255

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FILE NCHAME (CREATION DATE = 14/16/83)

***** MULTIPLE REGRESSION *****

VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TRFE

VARIABLE(S) ENTERED ON STEP NUMBER 2.. PRI

		ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE
MULTIPLE R	0.35807	REGRESSION	2.	411.89282	205.94641
R SQUARE	0.12823	RESIDUAL	6.	154.10713	25.68453
ADJUSTED R SQUARE	0.03697				
STANDARD ERROR	5.05799				

0.0103

VARIABLES IN THE EQUATION

VARIABLE	B	BETA	STD ERROR B	F
TIME	-0.4077979	-0.77512	0.11214	13.234
PRI	0.2593381E-03	0.33014	0.00017	2.399
(CONSTANT)	16.63723			

VARIABLES NOT IN THE EQUATION

VARIABLE	BETA IN	PARTIAL	TOLEANCE	F
POP1	0.20970	0.32072	0.43691	0.577
POP2	0.19677	0.25451	0.45574	0.344
POP	-0.99605	-0.64242	0.11306	3.514
PRIC	0.47611	0.57575	0.39310	2.470
PRIS	0.91603	0.44211	0.13400	3.576
CAM	0.12677	0.24976	0.89944	0.322
CAP	-0.18477	-0.11890	0.11274	0.972
CAT	0.05713	0.11664	0.82137	0.760

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FILE ACNAME (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION ***** VARIABLE LIST 1
REGRESSION LIST 1

DEPENDENT VARIABLE.. TRFF

VARIABLE(S) ENTERED ON STEP NUMBER 3.. PRIS

MULTIPLE R	0.91670	ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
R SQUARE	0.84034	REGRESSION	3.	475.43046	158.47682	9.77125
ADJUSTED R SQUARE	0.74454	RESIDUAL	4.	30.36054	7.59014	
STANDARD ERROR	4.25134					

VARIABLES IN THE EQUATION					VARIABLES NOT IN THE EQUATION				
VARIABLE	B	BETA	STD ERROR B	F	VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
TIME	-0.9354511	-1.58799	0.24633	11.497	POP1	0.06927	0.13276	0.55752	0.171
PRI	0.43963970-03	0.55267	0.00017	6.677	POP2	0.23311	0.40266	0.45270	0.771
PRIS	0.3965633	0.91603	0.31117	3.526	POP3	-0.49243	-0.10422	0.00721	0.044
(CONSTANT)	9.522252				PRIC	0.09253	0.28522	0.11706	0.171
					CAM	0.00243	0.00557	0.76343	0.111
					CAP	-1.00678	-0.71531	0.39972	4.181
					CAT	0.05538	0.12560	0.82102	0.041

VARIABLE(S) ENTERED ON STEP NUMBER 4.. CAP

MULTIPLE R	0.94019	ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
R SQUARE	0.82196	REGRESSION	4.	521.93107	130.48277	11.31444
ADJUSTED R SQUARE	0.84322	RESIDUAL	4.	44.16893	11.04223	
STANDARD ERROR	3.32299					

VARIABLES IN THE EQUATION					VARIABLES NOT IN THE EQUATION				
VARIABLE	B	BETA	STD ERROR B	F	VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
TIME	-0.5917395	-1.10506	0.22906	4.451	POP1	-0.07372	-0.10622	0.48474	0.121
PRI	0.74460920-03	0.74790	0.00020	13.891	POP2	0.13453	0.21200	0.41932	0.771
PRIS	0.6101634	1.43242	0.19532	5.759	POP3	-2.65965	-0.71227	0.00542	0.117
CAP	-4.619377	-1.00678	2.25913	4.134	PRIC	0.34215	0.41022	0.10317	0.402
(CONSTANT)	-8.613365				CAM	0.01340	0.04270	0.76741	0.025
					CAT	-0.05026	-0.15402	0.72747	0.171

FILE NCSM (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION ***** VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TRPE

VARIABLE(S) ENTERED ON STEP NUMBER 3.. POP

MULTIPLE R .89064
R SQUARE 0.79266
ADJUSTED R SQUARE 0.89777
STANDARD ERROR 2.63937

ANALYSIS OF VARIANCE OF SUM OF SQUARES MEAN SQUARE F
REGRESSION 5. 544.70199 108.94039 15.05113
RESIDUAL 3. 21.63811 7.21270

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
TIME	-0.7021225	-1.33455	0.19755	12.632
PRI	0.41145290-03	0.52380	0.00025	2.737
PRIS	-0.3327257	-0.76357	0.55780	0.356
CAP	-6.333791	-1.28052	2.07039	9.359
POP	-11.25792	-2.45365	6.39911	3.107
(CONSTANT)	93.44505			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
POP1	-0.01865	-0.04470	0.46252	0.103
POP2	0.02112	0.06470	0.35975	0.100
POP3	0.08192	0.12171	0.08442	0.170
CAM	0.09044	0.19579	0.40757	0.251
CAT	-0.19613	-0.73545	0.59375	2.256

VARIABLE(S) ENTERED ON STEP NUMBER 4.. CAT

MULTIPLE R 0.77116
R SQUARE 0.59470
ADJUSTED R SQUARE 0.92260
STANDARD ERROR 2.23180

ANALYSIS OF VARIANCE OF SUM OF SQUARES MEAN SQUARE F
REGRESSION 4. 556.03815 139.00954 17.62550
RESIDUAL 3. 9.05115 3.01705

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
TIME	-0.7444257	-1.41407	0.16624	20.052
PRI	0.35503230-03	0.45196	0.00021	2.857
PRIS	-0.6144364	-1.41972	0.49794	1.522
CAP	-7.303972	-1.70070	1.96697	17.743
POP	-15.19306	-3.53429	5.83434	4.655
CAT	-2.973437	-0.19613	1.33513	2.256
(CONSTANT)	127.3775			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
POP1	-0.14003	-0.71608	0.35243	1.052
POP2	0.12145	0.71608	0.27471	1.052
POP3	0.15524	0.32652	1.18222	0.129
CAM	-0.13057	-0.42440	0.25275	0.374

FILE ACNAME (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION ***** VARIABLE LIST 1
REGRESSION LIST 1

DEPENDENT VARIABLE.. TRPE

VARIABLE(S) ENTERED ON STEP NUMBER 7.. POP2

		ANALYSIS OF VARIANCE		DF	SUM OF SQUARES	MEAN SQUARE	F
MULTIPLE R	0.99570	REGRESSION	7.	561.74634	80.26274	14.51614	
R SQUARE	0.99142	RESIDUAL	1.	4.95366	4.95366		
ADJUSTED R SQUARE	0.98740						
STANDARD ERROR	2.2310						

----- VARIABLES IN THE EQUATION -----

VARIABLE	B	BETA	STD ERROR B	F
TIME	-0.7145409	-1.35817	0.16667	13.330
PRI	0.43593387-J3	0.55406	0.09022	3.974
PRIS	-0.5203340	-1.20193	0.50002	1.083
CAP	-7.427773	-1.61396	1.97460	14.150
POP	-14.111011	-3.73186	5.90157	5.716
CAT	-4.065797	-0.25474	2.18940	1.452
PCP2	3.052506	0.13145	2.07540	1.052
(CONSTANT)	111.3900			

----- VARIABLES NOT IN THE EQUATION -----

VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
POP1	0.64150	0.00000	0.00000	0.0
PRIC	-0.73192	-1.00000	0.01401	0.7
CAN	0.66494	1.00000	0.01040	0.0

F-LEVEL OR TOLERANCE-LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

STATISTICS WHICH CANNOT BE COMPUTED ARE PRINTED AS ALL NINES.

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STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

14/06/83

BASE 0

FILE NNAME (CREATION DATE = 14/06/83)

***** MULTIPLE REGRESSION *****

VARIABLE LIST
REGRESSION LIST

DEPENDENT VARIABLE.. TREFF

SUMMARY TABLE

VARIABLE	MULTIPLE R	F	SQJAP	FSD CHANGE	SIMPLE R	B	BETA
TIVE	0.78563	0.61887	0.6	0.837	-0.73463	-7.7145400	-1.25817
PRI	0.45317	0.72773	0.10226	0.35727	0.43593990	-0.55476	0.55476
PRIS	0.91670	0.84034	0.11761	-0.66467	-0.5203240	-1.20177	-1.20177
CAD	0.96019	0.92196	0.08167	-0.64578	-7.473773	-1.61996	-1.61996
PCP1	0.72744	0.76166	0.07971	0.63113	-14.11011	-2.27166	-2.27166
CAT	0.09116	0.53248	0.07074	0.38535	-4.045787	-0.25474	-0.25474
PCP2	0.99570	0.99147	0.01007	0.44583	2.052506	0.18145	0.18145
(CONSTANT)					111.3900		

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STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

14/05/83

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ELAPSED TIME REQUIRED.. 11.31 SECONDS

FINISH

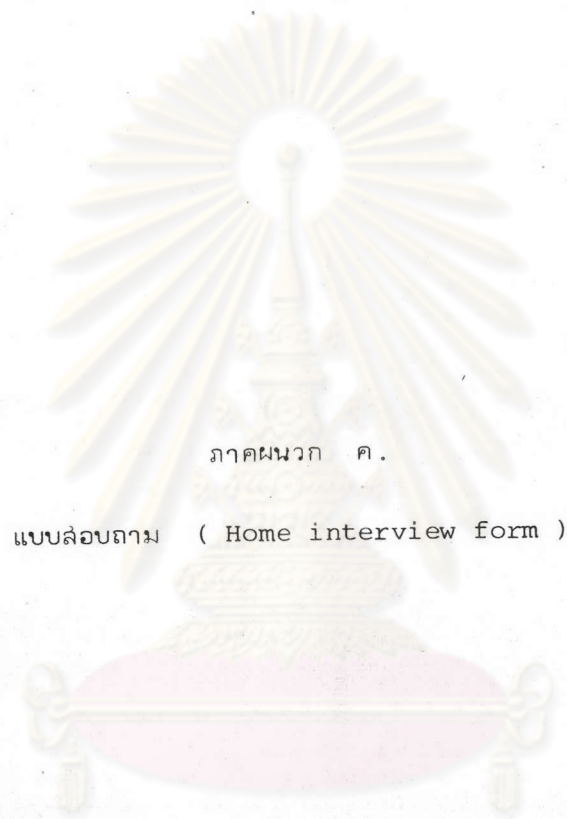
NORMAL END OF JOB.

11 CONTROL CARDS WERE PROCESSED.

0 ERRORS WERE DETECTED.



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จุฬาลงกรณ์มหาวิทยาลัย



ภาคผนวก ค.

แบบสอบถาม (Home interview form)

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

ชื่อหมู่บ้าน

วันที่.....

1. สถานะภาพทางครอบครัว

คนที่	เพศ	อายุ	อาชีพ	ระดับการศึกษา

2. ลักษณะการเดินทางของคนในครอบครัว

คนที่	จุดประสงค์ของ การเดินทาง	ปลายทาง	ชนิดของยานพาหนะ		ระยะทาง	ความถี่ของการเดิน- ทางต่อเดือน
			ก่อนมีถนน	หลังมีถนน		

3. การเป็นเจ้าของยานพาหนะ

ชนิดของยานพาหนะ	จำนวน
1. เกวียน	
2. ศักรยาน	
3. มอเตอร์ไซด์	
4. รถเก๋ง	
5. รถปิกอัพ	
6. รถ ขนาดเล็ก	
7. รถบรรทุก 6 ล้อ	
8. รถบรรทุก 10 ล้อ	
9. อื่น ๆ	

4. การไปทำงานที่ไม่ใช่งานเกษตรกรรม

คนที่	ชนิดของงาน	เวลาการทำงาน เดือน/ปี	รับจ้าง บาท/วัน	รายได้ประจำ บาท/เดือน	รายได้ บาท/ปี

5. การถือครองที่ดินทำกิน

เป็นเจ้าของที่ดิน

ไร่

เช่าที่ดินทำกิน

ไร่

เป็นเจ้าของที่ดินและเช่าที่ดินด้วย

ไร่,ไร่

6. พื้นที่ทำการเพาะปลูก

ชนิดของพืช	เนื้อที่ทำการเพาะปลูก (ไร่)				
	2521	2522	2523	2524	2525
1. ข้าว					
2. มันสำปะหลัง					
3. ปอ					
4.					
5.					
6.					

7. ผลผลิตของพืช

ชนิดของพืช	ผลผลิต (ตัง/ไร่, ตัน/ไร่)				
	2521	2522	2523	2524	2525
1. ข้าว					
2. มันสำปะหลัง					
3. ปอ					
4.					
5.					
6.					

8. ความถี่ในการปลูกพืช

ชนิดของพืช	จำนวนครั้งที่ปลูก/ปี				
	2521	2522	2523	2524	2525
1. ข้าว					
2. มันสำปะหลัง					
3. ปอ					
4.					
5.					
6.					

9. ราคาผลผลิต

ชนิดของพืช	ราคา				
	2521	2522	2523	2524	2525
1. ข้าว					
2. มันสำปะหลัง					
3. ปอ					
4.					
5.					

10. ราคาในการขนส่ง

	2521	2522	2524	2524	2525
1. ราคาค่าขนส่ง ผลผลิตทาง การเกษตร บาท/ตัน					
2. ราคาค่าขนส่ง สิ่งของสำหรับ อุปโภคและ บริโภค บาท/ตัน					
3. ราคาค่าโดย- सार บาท/กม.					

12. พาหนะที่ใช้ในการขนส่ง

ก่อนสร้างถนน

หลังสร้างถนน

รถบรรทุก 10 ล้อ

รถบรรทุก 6 ล้อ

รถปิกอัพ

เกวียน

มอเตอร์ไซด์

อื่น ๆ ระบุ

12. การใช้ปุ๋ย, ยาฆ่าแมลง และพันธุ์พืชข้าว

1. ใช้เมล็ดพันธุ์ธรรมชาติ, ใช่, ไม่ใช่
(ไม่ใช่หมายถึงใช้เมล็ดพันธุ์ที่ทางการแนะนำ)
2. ถ้าใช้เมล็ดพันธุ์ที่เจ้าหน้าที่แนะนำ
ก่อนสร้างถนน
หลังสร้างถนน
3. ใช้ปุ๋ยเคมีหรือเปล่า ใช่, ไม่ใช่
4. ถ้าใช้ปุ๋ยเคมีใช้เมื่อ
ก่อนสร้างถนน
หลังสร้างถนน
5. ใช้ยาปราบศัตรูพืช ใช่, ไม่ใช่
6. ถ้าใช้ยาปราบศัตรูพืช
ก่อนสร้างถนน
หลังสร้างถนน

13. ผลกำไรเนื่องจากมีถนน

1. ปรับปรุงการเดินทางเข้าสู่ฟาร์ม, ใช่, ไม่ใช่
2. ปรับปรุงโอกาสที่จะขยายผลผลิตทางการเกษตร, ใช่, ไม่ใช่
3. ปรับปรุงการเดินทางติดต่อระหว่างตลาด, ใช่, ไม่ใช่
4. ยกระดับความเป็นอยู่ให้ดีขึ้น, ใช่, ไม่ใช่
5. ปรับปรุงการเดินทางไปโรงเรียน, ใช่, ไม่ใช่
6. ปรับปรุงการเดินทางไปโรงพยาบาล, ใช่, ไม่ใช่
7. ความคิดเห็นอื่น ๆ

ประวัติผู้เขียน

นายอดุลย์ เข้าวัววาทิน เกิดเมื่อวันที่ 13 ธันวาคม พ.ศ. 2498
ที่จังหวัดขอนแก่น สำเร็จการศึกษาปริญญาวิศวกรรมศาสตรบัณฑิต จากมหาวิทยาลัยขอนแก่น
เมื่อปี พ.ศ. 2521 ปัจจุบันรับราชการในตำแหน่งวิศวกรโยธา สังกัดกองสำรวจ และ
ออกแบบ กรมทางหลวง.



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย