

APPENDIX 12-5

SUMMARY OF DEMOGRAPHIC AND AGRICULTURAL DATA (BOHOL)

BOHOL

Summary of Demographic and Agricultural Data

Class of Road	Type of Impr't	Road Number	Road Length/Population		1988		1988 Crop Area (ha)		1992 ADT		IRR (%)		
			(km)	Total /km	Total	Total	Major Crop	w/o with					
Second'y Major	Rehab/Imp-1	P80-1	7.7	4753	618	850	350(Palay) 250(Coco.)	100(Corn) 100(Banan)	50(Root)	7	56	9.3	
	Imp-1	P124-1	20.4	1598	78	4400	2500(Palay) 800(Root)	600(Coco.) 400(Banan)		52	49	6.3	
		N3-3	2.9	1447	499	430	350(Palay) 80(Root)			4	19	4.4	
		P72-2	16.7	1528	97	430	150(Root) 85(Coco.)	65(Palay) 65(Corn)	65(Banan)	3	21	3.2	
		P81-2	16.1	1549	96	240	170(Corn) 70(Coco.)			2	15	3.1	
		P49-2	18.9	8212	434	3100	1250(Palay) 1000(Corn)	500(Root) 350(Coco.)		105	128	1.8	
		N3-5	3.7	2378	643	370	220(Coco.) 100(Palay)	50(Corn)		7	27	1.1	
		P110-1B	9.5	2179	229	200	140(Coco.) 40(Banan)	20(Corn)		0	21	1.1	
		P58-1	7.7	3014	391	675	540(Palay) 135(Banan)			31	40	0	
		N11-1	38.5	13658	355	3800	1000(Coco.) 900(Root)	850(Palay) 700(Banan)	350(Vege.)	186	237	0	
		P157-1	6.5	1705	310	600	200(Root) 200(Banan)	120(Palay) 80(Coco.)		18	20	0	
	Minor (Nat'l/Prov'l)	Imp-2/Widen	P111-1	3.5	4755	1361	600	350(Palay) 170(Coco.)	80(Banan)		18	70	23.3
			P113-1	7.5	3942	526	1250	700(Coco.) 250(Banan)	200(Root)	100(Corn)	0	65	15.5
			P300-6	22.3	2010	90	1500	750(Palay) 300(Corn)	225(Coco.) 225(Root)		4	33	11.1
			P49-1	9.2	3441	374	1110	650(Palay) 450(Corn)			45	57	0
		P116-1	4.5	5445	1210	1500	855(Palay) 435(Coco.)	210(Banan)		11	72	27.1	
		P106-1	10.9	5004	459	1256	700(Palay) 250(Root)	215(Corn)	65(Banan)	25(Vege.)	16	81	25.3
		P62-1	9.9	4479	452	1490	585(Coco.) 385(Palay)	255(Corn)	210(Root)	45(Banan)	15	62	22.9
		P110-1a	5.0	3609	722	875	490(Palay) 245(Coco.)	100(Banan)	25(Corn)	15(Root)	12	59	22.5
		P146-1	7.4	3095	418	1100	285(Palay) 265(Coco.)	220(Root)	210(Corn)	120(Banan)	6	45	21.2
		P119-1	4.0	1290	323	300	105(Coco.) 90(Palay)	45(Root)	45(Banan)	15(Corn)	1	8	19.5
		P150-1	2.9	1285	443	580	150(Palay) 140(Coco.)	115(Root)	110(Corn)	65(Banan)	2	17	17.8
		P151-1	9.8	3240	331	1365	545(Coco.) 355(Palay)	260(Root)	150(Banan)	55(Corn)	8	45	17.6
		P123-1	8.5	3550	418	200	100(Coco.) 45(Banan)	40(Root)	15(Corn)		11	53	17.8
		P42-1	11.4	4449	390	1130	480(Palay) 325(Coco.)	300(Banan)	25(Vege.)		11	57	16.8
		P87-1	8.0	3711	464	700	250(Coco.) 180(Banan)	165(Palay)	70(Vege.)	25(Root)	7	50	16.8
	P64-1	5.4	2744	508	900	585(Coco.) 90(Palay)	90(Banan)	45(Corn)	45(Vege.)	9	43	14.4	
	P121-1	2.6	1481	570	127	45(Coco.)	35(Palay)	20(Banan)	6(Corn)	0	12	12.6	
	P6-1	2.3	1776	772	316	150(Corn)	70(Coco.)	50(Root)	30(Banan)	0	21	12.0	
	P120-1	3.3	3144	953	265	90(Coco.) 80(Palay)	40(Root)	40(Banan)	15(Corn)	0	38	11.6	
	P28-1	11.7	4109	351	1465	935(Coco.) 320(Palay)	90(Corn)	60(Root)	60(Banan)	9	43	11.5	
	P36-1	4.5	3410	758	117	47(Coco.) 29(Banan)	23(Corn)	18(Palay)		0	39	10.0	
	P140-1	3.7	3207	867	598	255(Coco.) 220(Palay)	65(Corn)	30(Banan)	10(Root)	0	37	9.7	
	P35-1	9.8	5050	515	140	50(Coco.) 35(Root)	25(Banan)	25(Banan)		9	59	9.6	
	P154-1	6.5	1758	270	360	130(Palay) 95(Coco.)	70(Corn)	45(Root)	20(Banan)	2	14	9.0	
	P67-1	6.6	3217	487	165	100(Corn)	30(Palay)	30(Banan)	5(Vege.)	10	45	8.8	
	P85-1	10.3	2853	277	775	270(Coco.) 230(Banan)	155(Palay)	80(Root)	40(Corn)	9	45	7.9	
	P43-1	3.5	1581	717	710	255(Palay) 190(Coco.)	135(Corn)	85(Root)	45(Banan)	0	28	7.1	
	P200-1	8.5	2327	271	598	290(Coco.) 100(Root)	70(Palay)	65(Corn)	60(Banan)	7	28	5.5	
	P300-1	2.3	1181	513	138	70(Corn)	30(Coco.)	20(Root)	15(Banan)	0	13	2.7	

Summary of Demographic and Agricultural Data

BOHOL

Class of Road	Type of Impr't	Road Number	Road Length (km)	1988 Population		1988 Crop Area (ha)		1992 AADT w/o with	IRR (%)		
				Total	/km	Total	Major Crop				
Minor (Barangay)	Rehab/Imp-1	B25-2	11.2	627	56	2170	1300(Coco.) 695(Corn) 175(Palay)	2	13	25.6	
		B28-5	1.1	510	464	523	308(Coco.) 55(Banan) 55(Corn)	0	9	23.3	
		B28-3	1.7	648	391	140	35(Root) 35(Corn) 22(Palay)	0	9	14.9	
		B11-2	1.3	865	658	269	175(Palay) 45(Corn) 30(Root)	0	11	11.2	
		B46-2	3.0	721	240	265	145(Palay) 48(Root) 33(Coco.)	0	7	9.9	
		B48-3	1.3	548	422	105	60(Coco.) 30(Corn) 10(Vege.)	0	5	9.4	
		B46-1	2.8	698	249	245	140(Palay) 45(Root) 30(Coco.)	0	4	7.2	
		B34-1	1.4	560	471	127	80(Coco.) 15(Root) 14(Corn)	0	8	6.1	
		B29-2	3.6	799	228	539	360(Coco.) 135(Palay) 38(Banan)	0	11	3.9	
		B2-1	2.4	1706	711	155	80(Palay) 45(Corn) 30(Coco.)	2	8	2.5	
		B17-3	1.4	488	349	26	7(Coco.) 5(Palay) 5(Corn)	0	6	1.8	
		B4-1	1.7	763	449	55	35(Banan) 20(Palay)	0	9	-0	
		B25-1	.9	574	838	15	10(Coco.) 4(Banan) 1(Vege.)	0	6	-0	
	New Const.		B22-2	2.5	535	214	350	230(Palay) 90(Root) 40(Corn)	0	5	20.6
			B18-3	1.0	377	377	172	55(Palay) 49(Root) 31(Coco.)	0	3	19.2
		B24-1	2.3	502	218	390	255(Palay) 60(Root) 50(Corn)	0	6	18.7	
		B37-1	2.0	762	381	320	128(Coco.) 64(Banan) 48(Corn)	0	4	16.2	
		B13-1	5.3	644	122	1260	650(Coco.) 360(Corn) 240(Palay)	0	6	16.5	
		B24-2	4.0	755	189	255	125(Coco.) 60(Banan) 55(Root)	0	5	13.8	
		B2-2	6.8	2126	312	430	215(Palay) 125(Corn) 80(Coco.)	0	13	10.4	
		B4-2	1.5	726	484	90	55(Palay) 25(Corn)	0	2	6.9	
		B44-1	2.0	525	263	315	185(Coco.) 95(Palay) 35(Root)	0	3	5.4	
		B39-2	5.9	694	118	410	270(Coco.) 30(Root) 60(Corn)	0	5	-0	

APPENDIX 12-6

SUMMARY OF ECONOMIC EVALUATION (BOHOL)

Summary of Economic Analysis

BOHOL

Cost/Benefit: 1990-2015 Discounted Total

Class of Road	Type of Impr't	1982 ADY w/o with	Length (km) Total Improvement	Economic Cost (MP/km)		Benefit (MP/km)		Economic Indicator							
				Const. Ruct.	Period Maint.	Normal Diver-ted	Gene- rated op't sav'g	NPV (MP)	B/C IRR (%)						
Primary Major	Rehab/ N4-4	217	10.2	1.31	.48	1.79	.04	.02	1.24	-5.6	.7	8.9			
	Imp-J N9-2	139	6.3	2.44	.19	2.63	1.50	.01	1.53	-7.0	.6	8.1			
	Imp-J N7-2	77	14.3	1.39	.13	1.52	.44	.02	.59	-10.2	.4	3.3			
	Imp-J N7-4	33	11.2	1.12	.17	1.30	.35	.01	.42	-9.8	.3	.0			
	Imp-2/ N4-5	329	7.1	1.97	.06	2.03	.51	1.46	.04	2.11	.0	1.0	15.7		
Second'y Major	Rehab/ P80-1	7	7.7	1.27	.17	1.44	.77	.08	.12	-0.1	.96	-3.7	.7	9.3	
	Imp-1 P124-1	52	20.4	.72	.16	1.88	.28	.00	.15	.04	.47	-8.2	.5	6.3	
Widen	Imp-1 P39-1	62	3.3	.92	.20	1.12	.36	.17	.03	.05	.51	-1.7	.5	6.2	
	Imp-1 N3-9	4	2.9	.62	.16	.67	.20	.01	.11	.01	.33	-1.0	.5	4.4	
	Imp-1 N10-2	68	18.9	1.53	.16	1.68	.53	.09	.09	.62	-19.3	.4	3.7		
	Imp-1 N10-3	68	12.0	1.36	.15	1.51	.46	.09	.09	.55	-11.4	.4	3.5		
	Imp-1 P72-2	3	15.7	1.33	.16	1.48	.41	.02	.13	.00	.55	-14.4	.4	3.2	
	Imp-1 P81-2	2	15.1	1.00	.16	1.16	.24	.02	.16	.00	.43	-11.6	.4	3.1	
	Imp-1 P49-2	105	18.9	1.20	.23	1.44	.31	.02	.11	.10	.55	-16.9	.4	1.8	
	Imp-1 P145-1	71	14.9	1.24	.22	1.45	.44	.07	.07	.55	-13.6	.4	1.3		
	Imp-1 N3-5	7	3.7	1.52	.15	1.67	.36	.07	.11	.00	.51	-4.3	.3	1.1	
	Imp-1 P110-1B	0	21	1.22	.17	1.39	.10	.07	.21	.13	-.01	.39	-9.3	.3	1.1
	Imp-1 N6-2	31	3.2	1.13	.15	1.28	.10	.02	.01	.02	.13	-3.7	.1	.0	
	Imp-1 P58-1	31	40	1.05	.15	1.21	.11	.02	.01	.13	.02	.27	-6.2	.2	.0
	Imp-1 P72-1	62	71	1.74	.13	1.87	.29	.07	.07	.36	-7.7	.2	.0		
	Imp-1 N11-1	186	237	1.27	.35	1.61	.28	.01	.09	.10	.49	-42.6	.3	.0	
	Imp-1 P157-1	18	20	.50	.16	.75	.07	.01	.07	.01	.15	-3.3	.2	.0	
Imp-1 P41-1	38	44	.95	.17	1.13	.25	.01	.01	.28	-.02	.28	-5.3	.2	.0	
Widen	Imp-2/ N2-2	312	3.2	1.51	.53	2.04	3.46	.09	.18	3.70	5.3	1.8	29.0		
	Imp-1 P11-1	18	70	.67	.18	.85	1.22	.00	.01	1.23	1.3	1.4	23.3		
	Imp-1 P13-1	0	65	1.25	.17	1.43	1.45	.02	.00	1.45	.2	1.0	15.5		
	Imp-1 P300-6	4	33	.72	.16	.87	.62	.01	.06	.68	-4.3	.8	11.1		
	Imp-1 P41-2	38	44	1.34	.17	1.51	.34	.01	.01	.38	-10.1	.2	.0		
	Imp-1 P49-1	45	57	1.41	.17	1.58	.10	.00	.00	.14	-13.2	.1	.0		
Imp-1 P128-1	12	27	.76	.18	.93	.07	.11	.11	.18	-4.9	.2	.0			

Summary of Economic Analysis

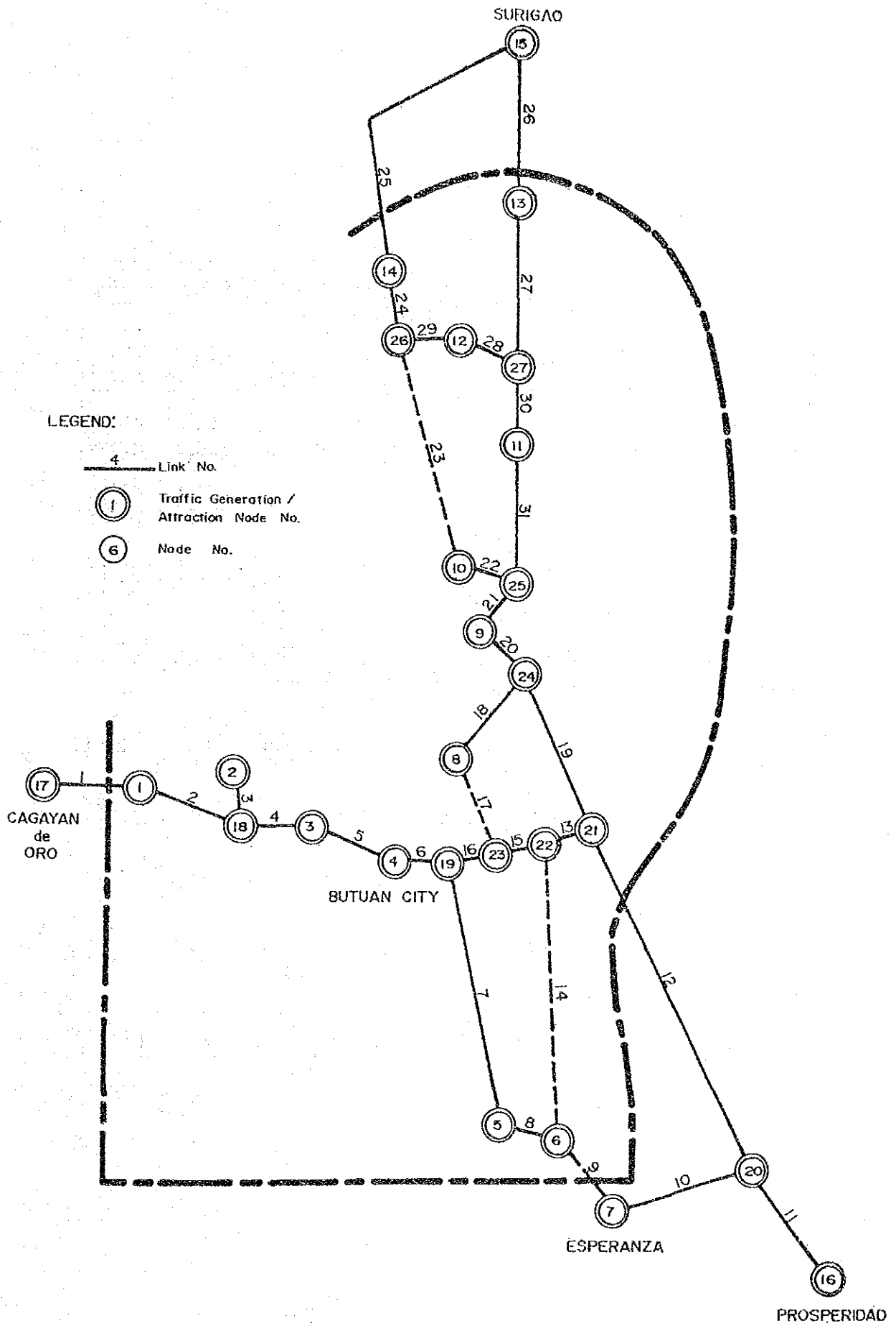
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Class of Road	Type of Imp't	Road Number	1992 AADT		Length (km)	Economic Cost (Mp/Km)		Benefit (Mp/Km)			Economic Indicator						
			w/o	with		Const. Puct.	Periodic Maint.	Total	Normal	Diverged	Gene-rated	Total	NPV (Mp)	B/C	IRR (%)		
Minor (Nat'l/Prov'l)	Rehab/Imp-1	P116-1	11	72	4.5	4.5(6.0-GRV)	1.02	19	1.20	1.96	-.06	-.08	2.10	4.0	1.7	27.1	
	Rehab/Imp-1	P106-1	16	81	10.9	10.9(6.0-GRV)	.89	20	1.08	1.50	-.05	-.12	1.76	7.3	1.6	28.3	
	Rehab/Imp-1	P62-1	15	62	9.9	9.9(6.0-BMP)	.83	17	1.80	1.00	-.04	-.11	1.15	3.6	1.4	22.9	
	Rehab/Imp-1	P110-1a	12	69	5.0	5.0(6.0-GRV)	.51	17	.68	.83	-.03	-.10	.95	1.3	1.4	22.5	
	Rehab/Imp-1	P145-1	6	45	7.4	7.4(6.0-GRV)	.74	16	.90	1.11	-.03	-.09	1.23	2.4	1.4	21.3	
	Rehab/Imp-1	P119-1	1	8	4.0	4.0(4.0-GRV)	.36	10	.46	.23	-.06	-.31	.59	.6	1.3	19.5	
	Rehab/Imp-1	P150-1	2	17	2.9	2.9(4.0-GRV)	.70	10	.80	.77	-.03	-.12	.94	.4	1.2	17.8	
	Rehab/Imp-1	P151-1	6	46	9.8	9.8(6.0-GRV)	1.16	18	1.32	1.36	-.03	-.14	1.53	2.1	1.2	17.8	
	Rehab/Imp-1	P123-1	11	53	8.5	8.5(6.0-GRV)	.52	17	.65	.64	-.03	-.12	.79	.8	1.1	17.6	
	Rehab/Imp-1	P42-1	11	67	11.4	11.4(6.0-GRV)	.79	17	.96	.89	-.11	-.06	1.04	1.0	1.1	16.8	
	Rehab/Imp-1	P87-1	17	60	8.0	8.0(6.0-GRV)	1.03	17	1.19	1.18	-.03	-.10	1.31	.9	1.1	16.8	
	Rehab/Imp-1	P64-1	9	43	5.4	5.0(6.0-GRV)	.85	15	.70	.86	-.02	-.09	.67	-.2	1.0	14.4	
	Rehab/Imp-1	P121-1	0	12	2.6	2.5(4.0-GRV)	.38	10	.48	.26	-.03	-.12	.41	-.2	.8	12.6	
	Rehab/Imp-1	P6-1	0	21	2.3	2.3(4.0-GRV)	.38	10	.48	.33	-.01	-.05	.40	-.2	.8	12.0	
	Rehab/Imp-1	P130-1	0	38	3.3	3.3(6.0-GRV)	.73	15	.88	.57	-.02	-.11	.70	-.6	.8	11.6	
	Rehab/Imp-1	P28-1	9	43	11.7	11.7(6.0-GRV)	.92	16	1.08	.70	-.06	-.08	.84	-.2	.7	10.0	
	Minor (Baran-Key)	Rehab/Imp-1	P38-1	0	39	4.5	4.2(6.0-GRV)	1.71	15	1.86	1.24	-.06	-.01	1.30	1.3	1.0	10.0
		Rehab/Imp-1	P140-1	0	37	3.7	3.7(6.0-GRV)	.95	15	1.15	1.61	-.03	-.13	.77	-.1	1.4	9.7
Rehab/Imp-1		P25-1	9	69	9.8	9.8(6.0-GRV)	.67	17	.84	.62	-.02	-.07	.51	-.2	.8	9.6	
Rehab/Imp-1		P154-1	2	14	6.5	6.5(4.0-GRV)	.55	10	.55	.35	-.05	-.11	.42	-.1	1.6	9.0	
Rehab/Imp-1		P57-1	10	45	6.5	3.6(6.0-BMP)	.85	16	.72	.88	-.01	-.09	.49	-.1	1.3	8.8	
Rehab/Imp-1		P86-1	9	45	10.3	10.3(6.0-GRV)	1.25	15	1.41	.68	-.02	-.12	.83	-.6	.6	7.9	
Rehab/Imp-1		P48-1	0	28	3.6	3.6(6.0-GRV)	.93	15	1.13	.45	-.05	-.13	.64	-.1	1.8	7.1	
Rehab/Imp-1		P200-1	7	28	8.6	8.6(6.0-GRV)	.73	15	.94	.38	-.01	-.08	.48	-.4	.6	6.5	
Rehab/Imp-1		P300-1	0	13	2.9	2.9(4.0-GRV)	.37	10	.47	.17	-.01	-.02	.21	-.6	.4	2.7	
Rehab/Imp-1		B25-2	2	13	11.2	11.2(4.0-GRV)	.44	10	.64	.68	-.03	-.17	.87	.3	1.6	25.6	
Rehab/Imp-1		B28-6	0	9	1.1	1.7(4.0-GRV)	.38	10	.48	.68	-.00	-.12	.72	.2	1.5	23.3	
Rehab/Imp-1		B28-3	0	9	1.7	1.6(4.0-GRV)	.35	10	.45	.32	-.01	-.10	.45	.0	1.0	14.9	
Rehab/Imp-1		B1-2	0	11	1.3	1.3(4.0-GRV)	.35	10	.46	.26	-.01	-.10	.37	-.1	.8	11.2	
Rehab/Imp-1		B46-2	0	7	3.0	3.0(4.0-GRV)	.42	10	.52	.20	-.01	-.14	.36	-.5	.7	9.9	
Rehab/Imp-1		B48-3	0	5	1.3	1.3(4.0-GRV)	.36	10	.45	.19	-.01	-.10	.31	-.2	.7	9.4	
Rehab/Imp-1		B46-1	0	4	2.8	2.8(4.0-GRV)	.42	10	.52	.11	-.02	-.15	.28	-.7	.5	7.2	
Rehab/Imp-1		B29-2	0	8	1.4	1.4(4.0-GRV)	.43	10	.53	.13	-.00	-.11	.26	-.4	.6	6.1	
Rehab/Imp-1		B29-2	0	11	3.6	3.1(4.0-GRV)	.62	10	.72	.19	-.00	-.09	.30	-.1	3.4	3.9	
Rehab/Imp-1	B2-1	2	8	2.4	2.4(4.0-GRV)	.32	10	.42	.17	-.01	-.11	.17	-.6	.4	2.6		
Rehab/Imp-1	B17-3	0	6	1.4	1.4(4.0-GRV)	.38	10	.48	.05	-.00	-.08	.18	-.4	.4	1.8		
Rehab/Imp-1	B6-1	0	9	1.7	1.7(4.0-GRV)	.38	10	.48	.05	-.00	-.04	.11	-.5	.2	.0		
Rehab/Imp-1	B25-1	0	6	.9	.9(4.0-GRV)	.38	10	.48	.03	-.00	-.04	.08	-.4	.2	.0		
New Const.	Const.	B23-2	0	5	2.6	2.6(4.0-GRV)	.47	10	.57	.48	-.03	-.29	.78	.5	1.4	20.6	
	Const.	B18-3	0	3	1.0	1.0(4.0-GRV)	.46	10	.56	.45	-.03	-.28	.71	.1	1.3	19.2	
	Const.	B21-1	0	6	2.3	2.3(4.0-GRV)	.46	10	.56	.47	-.02	-.19	.58	.3	1.2	18.7	
	Const.	B37-1	0	4	2.0	2.0(4.0-GRV)	.46	10	.56	.26	-.03	-.34	.50	.1	1.1	16.2	
	Const.	B13-1	0	6	3.3	3.3(4.0-GRV)	.42	10	.52	.25	-.02	-.26	.53	.1	1.0	15.6	
	Const.	B23-2	0	5	4.0	4.0(4.0-GRV)	.46	10	.56	.22	-.04	-.33	.61	-.2	.9	13.8	
	Const.	B2-2	0	13	6.8	6.8(4.0-GRV)	.45	10	.55	.23	-.05	-.38	.40	-.1	.0	10.4	
	Const.	B4-2	0	2	1.6	1.6(4.0-GRV)	.45	10	.55	.03	-.00	-.26	.27	-.4	.5	6.9	
	Const.	B44-1	0	3	2.0	2.0(4.0-GRV)	.48	10	.58	.08	-.01	-.16	.24	-.7	.4	5.4	
	Const.	B36-2	0	5	5.9	5.9(4.0-GRV)	.45	10	.55	.09	-.01	-.07	.16	-.2	.4	3.0	

**APPENDICES FOR
CHAPTER 13**

APPENDIX 13-1

RESULTS OF TRAFFIC PROJECTION FOR MAJOR ROADS
(AGUSAN DEL NORTE)



Movement of Passengers and Commodity

Link	Year	Number of Passengers				Commodity Tonnage					
		Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Total	Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Total
1	1988	2871	-	-	-	2871	650.74	-	-	-	650.74
	1992	3831	-	-	-	3831	835.23	-	.22	-	835.45
	1996	5053	-	-	-	5053	1061.33	-	-55	-	1060.78
	2016	9503	-	-	-	9504	1811.15	-	-84	-	1810.31
2	1988	3516	-	-	-	3516	1082.42	-	-	-	1082.42
	1992	4567	-	-17	91	4641	1347.57	-	-3.20	14.54	1358.91
	1996	5884	-	-23	341	6203	1661.61	-	-3.61	52.60	1710.60
	2016	10586	-	-47	579	11118	2684.50	-	-8.81	80.94	2756.63
3	1988	3177	-	-	-	3177	1003.33	-	-	-	1003.33
	1992	4010	-	-	218	4228	1218.07	-	.40	44.90	1263.37
	1996	5030	-	-	819	5849	1472.44	-	-.92	162.37	1633.89
	2016	8540	-	-	1393	9933	2268.08	-	-1.24	250.21	2517.06
4	1988	5661	-	-	-	5661	1951.12	-	-	-	1951.12
	1992	7240	-	-34	241	7447	2398.67	-	-5.95	45.50	2438.21
	1996	9197	-	-48	899	10048	2823.59	-	-6.79	163.56	3080.36
	2016	16052	-	-98	1494	17448	4609.42	-	-16.19	248.39	4841.62
5	1988	8583	-	-	-	8583	3118.03	-	-	-	3118.03
	1992	10892	-	-66	338	11164	3813.19	-	-8.63	55.22	3859.78
	1996	13731	-	-92	1248	14888	4626.53	-	-10.38	195.85	4812.00
	2016	23668	-	-192	2000	25376	7116.42	-	-24.82	286.29	7480.99
6	1988	16795	-	-363	3074	41123	10669.56	-	-48.08	402.39	11023.86
	1992	21290	-	97	831	22218	4820.61	-	3.67	139.90	3989.29
	1996	28828	-	140	3191	30149	5780.63	-	12.99	516.78	6310.39
	2016	48097	-	317	5611	52025	8849.83	-	27.61	834.01	9711.45
7	1988	386	-	-	-	386	94.66	-	-	-	94.66
	1992	427	-85	-63	20	309	115.60	-17.36	-9.54	6.88	94.58
	1996	538	-109	-67	75	438	140.51	-21.08	-11.52	21.64	129.54
	2016	1499	-328	-184	191	1177	321.89	-32.97	-17.67	83.35	200.87
8	1988	66	-	-	-	66	26.46	-	-	-	26.46
	1992	83	4	63	96	236	32.21	-14.36	9.45	21.97	49.27
	1996	105	7	67	365	544	33.02	-17.33	11.31	80.01	113.01
	2016	180	20	113	630	944	61.01	-27.04	17.37	123.84	175.18
2016	294	44	184	1030	1551	90.06	-35.79	25.66	181.89	257.72	

TRAFFIC PROJECTION

AGUSAN DEL NORTE

Movement of Passengers and Commodity

Link	Year	Number of Passengers				Commodity Tonnage					
		Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Total	Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Total
9	1988	-	-	-	94	201	-	-	-	-	28.90
	1992	-	69	49	94	201	-	2.60	10.81	15.49	28.90
	1996	-	77	61	344	482	-	3.23	12.72	54.65	70.60
	2016	-	143	103	563	809	-	5.12	18.92	79.62	103.66
10	1988	-	-	-	368	1482	-	-	-	-	143.13
	1992	2793	-	-	368	1482	759.96	-	-	-	759.96
	1996	3362	53	3	132	3550	879.34	.25	-9.31	17.00	887.28
	2016	6265	133	28	595	7121	1430.08	1.10	-16.35	78.81	1493.64
11	1988	-	-	-	1008	10660	13350	-	-	-	2020.47
	1992	17133	-	3	-	17135	1271.12	-	-	-	1029.40
	1996	21858	-	3	-	21862	1563.00	-	-	-	1271.55
	2016	38650	-	5	-	38656	2508.84	-	-	-	1562.19
12	1988	-	-	-	1008	64128	3777.61	-	-	-	2507.68
	1992	11709	-	8	-	64128	3777.61	-	-	-	3776.07
	1996	15097	-	3	-	15100	1488.60	-	-	-	1488.60
	2016	34502	-	3	-	34505	3286.44	-	-	-	1795.59
13	1988	-	-	-	1008	58367	4779.50	-	-	-	3337.39
	1992	16728	-	111	390	16728	3910.73	-	-	-	4838.82
	1996	26737	-	152	1394	26883	5654.55	-	-	-	3910.73
	2016	45976	-	312	2043	46288	8670.47	-	-	-	4623.70
14	1988	-	-	-	116	154	-	-	-	-	5681.92
	1992	-	26	-14	12	24	-	14.76	-5.50	1.24	10.50
	1996	-	32	-17	44	59	-	17.85	-6.61	4.37	15.60
	2016	-	52	-28	73	98	-	27.86	-10.28	6.55	24.12
15	1988	-	-	-	2969	75977	12642.53	-	-	-	35.24
	1992	16728	-	115	398	16728	3910.73	-	-	-	3910.73
	1996	26737	-	157	1421	26894	4724.66	-	-	-	4633.07
	2016	45976	-	321	2086	46297	8670.47	-	-	-	5678.83
16	1988	-	-	-	9354	84813	112642.53	-	-	-	8581.43
	1992	16728	-	126	820	16728	3910.73	-	-	-	12368.01
	1996	26737	-	178	3142	26910	4724.66	-	-	-	3910.73
	2016	45976	-	380	5560	46433	8670.47	-	-	-	4884.60

TRAFFIC PROJECTION AGUSAN DEL NORTE

Link	Year	Movement of Passengers and Commodity				Number of Passengers				Commodity Tonnage				
		Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Total
17	1988	-	-	-	441	-	-	-	979	-	-	-	-	256.55
	1992	-	395	142	1799	-	157.89	18.54	80.12	-	-	-	-	546.32
	1996	-	544	194	389	-	208.24	24.63	313.45	-	-	-	-	1008.05
	2006	-	1131	389	3650	-	390.06	46.04	571.95	-	-	-	-	1701.33
	2016	-	2154	716	6746	-	668.11	79.05	964.17	-	-	-	-	289.47
18	1988	853	-	-	-	269.47	-	-	863	269.47	-	-	-	202.22
	1992	1184	-395	-142	69	360.09	-157.89	-18.02	18.04	360.09	-157.89	-18.02	18.04	317.75
	1996	1626	-544	-192	296	476.20	-208.24	-24.36	74.16	476.20	-208.24	-24.36	74.16	612.01
	2006	3357	-1131	-387	700	892.28	-390.06	-45.51	155.30	892.28	-390.06	-45.51	155.30	1074.23
	2016	6345	-2164	-713	1459	1529.73	-668.11	-78.09	290.70	1529.73	-668.11	-78.09	290.70	2526.19
19	1988	8659	-	-	-	2626.19	-	-	8659	2626.19	-	-	-	2959.27
	1992	10840	-395	32	319	3067.18	-157.89	5.96	54.02	3067.18	-157.89	5.96	54.02	3660.10
	1996	13467	-544	48	1147	4111.7	-208.25	10.08	186.27	4111.7	-208.25	10.08	186.27	5504.08
	2006	22340	-1131	112	1695	5626.75	-390.06	17.01	250.39	5626.75	-390.06	17.01	250.39	7908.08
	2016	35349	-2154	232	2414	8226.36	-668.11	27.61	322.23	8226.36	-668.11	27.61	322.23	2323.40
20	1988	8385	-	-	-	2323.40	-	-	8385	2323.40	-	-	-	2845.72
	1992	10442	-	-109	388	2785.72	-	-	72.06	2785.72	-	-	72.06	3561.36
	1996	12917	-	-145	1443	3315.21	-	-	14.28	3315.21	-	-	14.28	5335.96
	2006	21173	-	-275	2395	4958.77	-	-	28.50	4958.77	-	-	28.50	7646.10
	2016	33078	-	-480	3873	7083.65	-	-	50.48	7083.65	-	-	50.48	829.75
21	1988	5014	-	-	-	829.75	-	-	5014	829.75	-	-	-	1068.17
	1992	6235	-	-36	376	998.60	-	-	6.74	998.60	-	-	6.74	1455.99
	1996	7687	-	-47	1399	1189.42	-	-	12.93	1189.42	-	-	12.93	2190.00
	2006	12418	-	-84	2337	1783.83	-	-	22.06	1783.83	-	-	22.06	3147.20
	2016	19035	-	-141	3744	2351.44	-	-	224.94	2351.44	-	-	224.94	333.26
22	1988	776	-	-	-	224.94	-	-	776	224.94	-	-	-	547.82
	1992	980	-	-	300	273.10	-	-	1280	273.10	-	-	1280	844.18
	1996	1229	-	-	1129	329.93	-	-	2358	329.93	-	-	2358	1236.23
	2006	2088	-	-	1918	508.32	-	-	4005	508.32	-	-	4005	224.94
	2016	3370	-	-	3093	744.33	-	-	5463	744.33	-	-	5463	9.99
23	1988	-	-	-	-	-	-	-	-	-	-	-	-	16.45
	1992	-	-	-	2	-	-	-	2	-	-	-	0.4	30.95
	1996	-	-	-	6	-	-	-	6	-	-	-	0.5	47.79
	2006	-	-	-	11	-	-	-	11	-	-	-	0.8	70.06
	2016	-	-	-	18	-	-	-	18	-	-	-	1.1	97.06
24	1988	14	-	-	-	9.99	-	-	14	9.99	-	-	-	9.99
	1992	18	-1	-	24	12.13	-	-	40	12.13	-	-	1.3	16.45
	1996	22	-2	-	90	14.66	-	-	110	14.66	-	-	1.6	30.95
	2006	38	-3	-1	153	22.59	-	-	188	22.59	-	-	2.5	47.79
	2016	62	-4	-1	246	33.07	-	-	304	33.07	-	-	3.3	70.06

TRAFFIC PROJECTION AGUSAN DEL NORTE

Link	Year	Movement of Passengers and Commodity				Number of Passengers				Commodity Tonnage				
		Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Normal	Diver- ted-1	Diver- ted-2	Gene- rated	Total
25	1988	-	-	-	-	-	-	-	-	-	-	-	-	-
	1992	-	1	-	-	2	-	-	-	-	.13	.14	-	.27
	1995	-	2	-	-	2	-	-	-	-	.16	.16	-	.32
	2006	-	3	1	-	3	-	-	-	-	.22	.23	-	.44
2016	-	4	1	-	4	-	-	-	-	.28	.29	-	.57	
26	1988	5154	-	-	-	5154	-	-	-	552.88	-	-	-	552.88
	1992	6349	-1	-1	-	6346	-	-	-	565.01	-.13	-.05	-	654.83
	1995	7740	-2	-2	-	7736	-	-	-	769.41	-.16	-.25	-	788.00
	2006	12084	-3	-3	-	12079	-	-	-	1088.18	-.22	-.32	-	1087.65
2016	17802	-4	-4	-	17794	-	-	-	1454.03	-.28	-.38	-	1453.37	
27	1988	3761	-	-	-	3761	-	-	-	324.31	-	-	-	324.31
	1992	4623	-1	-6	70	4686	-	-	-	386.40	-.13	-3.81	11.20	393.65
	1995	5614	-2	-7	259	5864	-	-	-	463.40	-.16	-3.70	39.92	489.45
	2006	8631	-3	-14	426	9040	-	-	-	667.36	-.22	-7.41	59.60	709.34
2016	12456	-4	-26	669	13036	-	-	-	911.12	-.28	-12.81	85.05	983.09	
28	1988	1474	-	-	-	1474	-	-	-	55.66	-	-	-	55.66
	1992	1861	-1	-7	142	1994	-	-	-	67.57	-.18	-1.02	51.68	119.06
	1995	2334	-2	-9	532	2855	-	-	-	81.63	-.21	-1.29	187.04	267.18
	2006	3983	-3	-16	900	4848	-	-	-	125.77	-.30	-2.03	287.96	411.40
2016	6395	-4	-26	1450	7815	-	-	-	184.14	-.41	-3.03	421.74	602.45	
29	1988	14	-	-	-	14	-	-	-	9.99	-	-	-	9.99
	1992	18	-1	-	22	38	-	-	-	12.13	-.18	-.18	4.42	16.19
	1995	22	-2	-	89	104	-	-	-	14.66	-.21	-.22	15.99	30.21
	2006	38	-3	-1	142	178	-	-	-	22.59	-.30	-.33	24.58	46.64
2016	62	-4	-1	228	285	-	-	-	33.07	-.41	-.44	35.16	68.38	
30	1988	4209	-	-	-	4209	-	-	-	371.16	-	-	-	371.16
	1992	5211	-	-26	165	5349	-	-	-	443.40	-.04	-5.02	50.20	488.53
	1995	6388	-	-34	614	6958	-	-	-	522.28	-.05	-5.18	181.53	698.58
	2006	10137	-	-62	1028	11103	-	-	-	754.08	-.08	-9.80	279.30	1033.49
2016	15219	-	-104	1649	16764	-	-	-	1068.05	-.13	-16.50	409.67	1461.09	
31	1988	4478	-	-	-	4478	-	-	-	628.02	-	-	-	628.02
	1992	5557	-	-33	179	5702	-	-	-	753.61	-.04	-5.91	49.80	797.45
	1995	6830	-	-43	666	7452	-	-	-	893.82	-.05	-6.23	180.01	1067.55
	2006	10939	-	-78	1111	11971	-	-	-	1328.23	-.08	-11.85	276.86	1693.16
2016	16604	-	-131	1780	18253	-	-	-	1884.23	-.13	-20.06	406.39	2270.43	

TRAFFIC PROJECTION ACUSAN DEL NORTE

Link	Year	w/o				with				Total	Tri-Mot. Ani- cycl mal	Tri-Mot. Ani- cycl mal	Total
		Car Jeep- /Van ney	Bus Tru-Sub- ck	Tru-Sub- ck	Tru-Sub- ck	Car Jeep- /Van ney	Bus Tru-Sub- ck	Tru-Sub- ck	Tru-Sub- ck				
1	1988	220	133	62	154	559	98	97	-	694	-	-	908
	1992	286	175	69	198	729	50	129	-	908	286	175	1175
	1996	369	228	91	252	940	65	171	-	1176	369	228	1575
	2016	1076	708	299	680	2763	118	321	-	3521	1076	708	3520
2	1988	331	181	64	257	833	53	119	-	1004	-	-	1288
	1992	417	292	82	320	1051	58	154	-	1273	422	235	1664
	1996	522	294	106	394	1316	85	199	-	1600	541	307	2154
	2016	1376	829	323	958	3498	297	604	-	4338	1421	863	4492
3	1988	305	165	57	238	765	49	107	-	921	-	-	1187
	1992	374	206	72	289	941	60	135	-	1137	390	215	1581
	1996	457	254	91	349	1152	74	170	-	1396	515	291	2045
	2016	1098	650	249	788	2786	187	465	-	3438	1239	745	3902
4	1988	578	305	102	453	1449	90	191	-	1730	-	-	2206
	1992	718	384	131	569	1803	113	244	-	2160	733	393	2863
	1996	886	480	166	694	2226	141	310	-	2577	945	517	3432
	2016	2217	1282	479	1630	5609	371	895	-	6874	2348	1373	7312
5	1988	911	473	155	740	2279	141	290	-	2710	-	-	3418
	1992	1125	591	197	905	2818	175	368	-	3561	1142	603	4377
	1996	1379	734	248	1098	3459	217	463	-	4139	1461	782	5021
	2016	3367	1904	694	2532	8497	554	1296	-	10947	3518	2013	13861
6	1988	1326	789	302	947	3365	226	567	-	4158	-	-	5331
	1992	1630	985	385	1144	4143	281	719	-	5143	1687	1023	7003
	1996	1990	1222	485	1372	5068	348	905	-	6321	2197	1351	7756
	2016	4863	3206	1356	3063	12488	997	2534	-	15918	5428	3698	17834
7	1988	32	22	4	12	68	121	25	4	216	-	-	205
	1992	40	27	5	15	82	150	31	5	268	33	20	276
	1996	49	34	7	18	101	185	39	6	331	50	25	441
	2016	118	85	2	41	245	462	110	13	823	119	62	674
8	1988	9	7	-	3	20	20	2	4	45	-	-	116
	1992	11	9	-	4	24	25	2	4	56	19	15	159
	1996	13	11	-	5	29	31	3	5	69	48	27	279
	2016	32	27	-	12	70	81	9	12	192	117	71	341

TRAFFIC PROJECTION AGUSAN DEL NORTE

Link	Year	w/o					with											
		Car Jeep- /Van ney	Bus	Tru- ck	Sub- Total	Tri- cycl	Mot. cycl	Ani- mal	Total	Car Jeep- /Van ney	Bus	Tru- ck	Sub- Total	Tri- cycl	Mot. cycl	Ani- mal	Total	
9	1988	-	-	-	-	-	-	-	-	18	14	7	11	36	12	28	51	126
	1992	-	-	-	-	-	-	-	-	33	21	5	9	68	89	20	-	177
	1996	-	-	-	-	-	-	-	-	51	34	8	14	107	139	32	-	278
	2016	-	-	-	-	-	-	-	-	75	53	13	19	160	207	48	-	416
10	1988	298	234	3	99	634	665	204	1503	366	271	24	115	777	673	195	-	1645
	1992	348	275	4	114	741	787	246	1774	473	309	83	138	1004	469	86	-	1559
	1996	406	323	5	132	865	931	295	2091	680	456	129	194	1460	670	134	-	2264
	2016	583	472	8	185	1249	1391	458	3098	942	651	194	268	2050	925	200	-	3174
11	1988	558	812	162	205	1737	28	300	2065	703	1035	208	253	2198	35	386	-	2619
	1992	704	1034	208	253	2199	35	385	2620	876	1312	265	312	2766	45	492	-	3303
	1996	884	1310	265	311	2770	45	492	3307	1489	2278	469	582	4738	80	870	-	5687
	2016	1501	2276	469	498	4744	80	870	5694	2377	3718	778	785	7629	133	1443	-	9205
12	1988	632	807	142	256	1876	24	263	2164	789	1022	184	356	2350	31	340	-	2722
	1992	784	1020	183	356	2343	31	340	2714	999	1306	239	431	2974	41	443	-	3458
	1996	968	1283	235	427	2812	40	435	3387	1536	2232	424	656	4948	72	787	-	5807
	2016	1593	2201	419	653	4866	71	776	5714	2546	3604	707	952	7809	121	1311	-	9240
13	1988	1545	1178	167	816	3706	205	523	4434	1867	1472	211	954	4514	243	662	-	5401
	1992	1894	1473	211	986	4564	265	663	5482	2335	1904	275	1180	5695	219	862	-	6775
	1996	2306	1831	266	1182	5585	316	836	6737	3873	3137	468	1784	9062	372	1867	-	10901
	2016	3668	3052	458	1809	8937	522	1437	10946	5518	4927	765	2571	13772	602	2371	-	16745
14	1988	-	-	-	-	-	-	-	-	4	3	0	5	8	4	4	19	34
	1992	-	-	-	-	-	-	-	-	6	3	1	2	12	20	4	-	35
	1996	-	-	-	-	-	-	-	-	10	5	2	3	18	31	6	-	55
	2016	-	-	-	-	-	-	-	-	14	8	3	5	27	47	9	-	83
15	1988	1674	1178	167	777	3796	166	523	4485	1913	1568	211	930	4512	243	663	-	5518
	1992	2050	1473	211	939	4673	208	663	5544	2126	2254	273	1128	5781	339	863	-	7043
	1996	2493	1831	266	1125	5715	259	836	6810	3361	3656	464	1703	9156	643	1469	-	11308
	2016	3954	3052	458	1723	9186	435	1437	11059	5076	5689	761	2457	13973	989	2374	-	17336
16	1988	1674	1178	167	777	3796	166	523	4485	2010	1640	220	970	4840	255	591	-	5786
	1992	2050	1473	211	939	4673	208	663	5544	2319	2454	296	1234	6303	435	937	-	7674
	1996	2493	1831	266	1125	5715	259	836	6810	3728	4056	512	1839	10195	712	1619	-	12525
	2016	3954	3052	458	1723	9186	435	1437	11059	5717	6384	838	2784	15723	1111	2551	-	19484

TRAFFIC PROJECTION AGUSAN DEL NORTE

Link	Year	w/o						with										
		Car /Van	Jeep	Bus	Tru-ck	Sub-Total	Tri-Mot. cycl	Anti-mal	Total	Car /Van	Jeep	Bus	Tru-ck	Sub-Total	Tri-Mot. cycl	Anti-mal	Total	
17	1988	-	-	-	-	-	-	-	-	126	93	2	161	236	51	143	456	886
	1992	-	-	-	-	-	-	-	-	237	104	16	100	457	370	159	-	885
	2006	-	-	-	-	-	-	-	-	447	209	32	184	872	729	323	-	1924
	2016	-	-	-	-	-	-	-	-	770	382	60	311	1523	1317	601	-	3441
18	1988	109	31	2	491	191	158	129	478	-	-	-	-	-	-	-	-	-
	1992	146	43	3	66	258	216	179	653	83	27	3	371	150	123	87	-	361
	1996	194	58	4	87	343	293	246	882	133	51	7	58	249	187	74	-	510
	2006	368	117	8	163	657	584	508	1749	260	106	16	112	494	385	159	-	1038
19	2016	641	217	16	279	1153	1069	960	3182	460	203	31	195	895	722	309	-	1926
	1988	659	704	125	568	2055	109	233	2397	-	-	-	-	-	-	-	-	-
	1992	805	867	156	687	2515	134	291	2940	883	811	155	649	2498	105	290	-	2893
	1996	976	1061	194	825	3056	163	362	3581	1350	934	203	763	3250	68	379	-	3697
20	2006	1533	1599	321	1264	4817	258	600	5675	2070	1480	331	1147	5028	111	519	-	5758
	2016	2299	2599	509	1848	7255	390	950	8595	3034	2246	516	1648	7443	173	963	-	8579
	1988	615	666	121	522	1923	102	225	2251	-	-	-	-	-	-	-	-	-
	1992	745	815	150	626	2336	125	281	2741	772	833	154	639	2398	102	288	-	2739
21	1996	838	930	186	745	2839	151	347	3317	1007	1071	205	800	3083	69	382	-	3534
	2006	1383	1561	305	1114	4363	234	569	5166	1553	1691	335	1199	4777	112	626	-	5516
	2016	2037	2351	476	1591	6455	349	889	7693	2292	2555	525	1718	7090	176	980	-	8246
	1988	269	324	72	186	845	46	135	1027	-	-	-	-	-	-	-	-	-
22	1992	321	399	90	224	1034	57	168	1258	345	422	95	240	1102	51	177	-	1329
	1996	389	485	111	267	1252	69	207	1528	482	576	130	327	1515	44	243	-	1802
	2006	602	767	179	401	1943	108	334	2380	749	913	211	492	2364	71	394	-	2829
	2016	889	1151	274	573	2887	160	512	3559	1110	1378	326	707	3520	109	608	-	4238
23	1988	46	96	1	43	185	54	38	309	69	152	2	64	287	84	62	31	465
	1992	56	119	1	52	228	67	48	381	117	274	3	105	499	146	115	-	760
	1996	68	146	2	63	279	82	60	467	185	447	5	161	798	236	195	-	1229
	2006	107	238	3	97	445	132	102	71	278	693	8	236	1215	362	315	-	1893
24	2016	160	359	4	142	675	203	164	1147	278	693	8	236	1215	362	315	-	1893
	1988	-	-	-	-	-	-	-	-	1	2	0	0	3	0	2	5	1
	1992	-	-	-	-	-	-	-	-	2	6	0	1	9	3	2	1	1
	1996	-	-	-	-	-	-	-	-	4	1	0	2	2	5	3	2	2
25	2006	-	-	-	-	-	-	-	-	6	2	0	3	2	8	5	4	4
	2016	-	-	-	-	-	-	-	-	6	2	0	3	2	8	5	4	4
	1988	4	4	-	-	7	-	3	27	6	6	0	1	13	1	5	29	50
	1992	5	4	-	-	9	-	3	32	7	14	3	6	26	9	3	-	39
26	1996	6	5	-	-	11	-	4	39	11	22	3	9	42	14	6	-	62
	2006	9	8	-	-	17	-	7	60	11	22	3	9	42	14	6	-	62
	2016	14	13	-	-	26	-	12	88	16	34	5	13	64	22	9	-	95

TRAFFIC PROJECTION AGUSAN DEL NORTE

Link	Year	w/o										with									
		Car/Van	Jeep	Bus	Tru-ck	Sub-ck	Tri-cycl	Mot. cycl	Ani-mal	Total	Car/Van	Jeep	Bus	Tru-ck	Sub-ck	Tri-cycl	Mot. cycl	Ani-mal	Total		
	1988	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
25	1988	215	294	74	124	707	40	139	-	-	-	-	-	-	-	-	-	-	-		
	1992	260	358	91	147	857	48	171	-	-	-	-	-	-	-	-	-	-	-		
	1996	311	438	111	173	1028	58	208	-	-	-	-	-	-	-	-	-	-	-		
	2006	465	661	174	244	1545	87	325	-	-	-	-	-	-	-	-	-	-	-		
	2016	658	954	256	327	2195	125	478	-	-	-	-	-	-	-	-	-	-	-		
26	1988	142	204	54	73	473	27	101	-	-	-	-	-	-	-	-	-	-	-		
	1992	172	249	67	87	575	33	124	-	-	-	-	-	-	-	-	-	-	-		
	1996	207	300	81	102	689	39	151	-	-	-	-	-	-	-	-	-	-	-		
	2006	310	456	124	148	1038	59	232	-	-	-	-	-	-	-	-	-	-	-		
	2016	441	653	179	205	1478	84	335	-	-	-	-	-	-	-	-	-	-	-		
27	1988	61	114	3	2	180	39	15	6	-	-	-	-	-	-	-	-	-	-		
	1992	76	143	4	2	225	49	19	7	-	-	-	-	-	-	-	-	-	-		
	1996	93	179	5	3	279	61	23	8	-	-	-	-	-	-	-	-	-	-		
	2006	150	301	8	4	453	103	40	13	-	-	-	-	-	-	-	-	-	-		
	2016	231	481	13	6	731	163	64	18	-	-	-	-	-	-	-	-	-	-		
28	1988	4	4	-	-	7	-	3	27	-	-	-	-	-	-	-	-	-	-		
	1992	5	4	-	-	9	-	3	32	-	-	-	-	-	-	-	-	-	-		
	1996	6	5	-	-	11	-	4	39	-	-	-	-	-	-	-	-	-	-		
	2006	9	8	-	-	17	-	7	60	-	-	-	-	-	-	-	-	-	-		
	2016	14	13	-	-	26	-	12	88	-	-	-	-	-	-	-	-	-	-		
29	1988	161	229	61	83	534	30	113	-	-	-	-	-	-	-	-	-	-	-		
	1992	196	282	75	100	652	37	140	-	-	-	-	-	-	-	-	-	-	-		
	1996	236	342	92	117	788	45	172	-	-	-	-	-	-	-	-	-	-	-		
	2006	363	535	146	172	1215	69	272	-	-	-	-	-	-	-	-	-	-	-		
	2016	530	792	219	240	1781	102	409	-	-	-	-	-	-	-	-	-	-	-		
30	1988	214	275	64	141	694	38	120	-	-	-	-	-	-	-	-	-	-	-		
	1992	261	337	80	169	848	47	149	-	-	-	-	-	-	-	-	-	-	-		
	1996	315	410	98	201	1024	57	184	-	-	-	-	-	-	-	-	-	-	-		
	2006	485	643	157	298	1584	88	294	-	-	-	-	-	-	-	-	-	-	-		
	2016	712	959	239	423	2333	130	446	-	-	-	-	-	-	-	-	-	-	-		
31	1988	214	275	64	141	694	38	120	-	-	-	-	-	-	-	-	-	-	-		
	1992	261	337	80	169	848	47	149	-	-	-	-	-	-	-	-	-	-	-		
	1996	315	410	98	201	1024	57	184	-	-	-	-	-	-	-	-	-	-	-		
	2006	485	643	157	298	1584	88	294	-	-	-	-	-	-	-	-	-	-	-		
	2016	712	959	239	423	2333	130	446	-	-	-	-	-	-	-	-	-	-	-		

APPENDIX 13-2

SUMMARY OF TRAFFIC VOLUME ON STUDIED ROADS
(AGUSAN DEL NORTE)

Traffic Volume by Vehicle Type

AGUSAN DEL NORTE

Class of Road	Type of Road	W/O				With											
		Car	Jeep	Bus	Truck	Tri-Motor	Tri-Motor	Tri-Motor	Tri-Motor								
Imp-1	Rehab/Imp-1	40	27	1	15	82	150	31	5	33	20	0	12	65	116	22	3
Primary Major	N8-1	56	119	1	52	228	67	48	38	126	93	2	16	236	51	143	456
Second Major	H0-81	78	143	4	2	226	49	19	7	68	182	2	64	287	84	62	31
	P4-76	31	36	1	1	58	129	94	7	109	184	4	4	282	56	20	8
Imp-1	N11-1	5	4	-	-	145	8	25	2	45	81	3	3	108	50	6	-
	P4-77	14	14	-	-	39	35	331	4	6	5	0	1	13	1	5	29
Imp-2	B5-2	11	9	4	4	24	25	2	4	22	30	1	1	53	31	2	-
	CO-1	-	-	-	-	-	-	-	-	19	15	0	6	41	61	9	4
New	B0-92	13	17	1	1	30	67	43	-	126	93	2	15	236	51	143	456
	B6-5	-	-	-	-	-	-	-	-	19	27	2	2	48	24	3	-
Const.	P10-71	-	-	-	-	-	-	-	-	4	11	1	3	18	-	-	-
	B4-39	-	-	-	-	-	-	-	-	3	4	0	0	8	3	1	-
Rehab/Imp-1	B4-34	-	-	-	-	-	-	-	-	5	8	6	1	14	6	1	-
	P2-44	22	23	0	0	46	91	85	-	32	43	-	1	76	49	6	-
Minor (Nat'l/Prov'l)	N12-1	16	18	0	0	36	69	47	-	28	36	-	1	64	41	3	-
	P8-8	18	17	0	0	38	67	84	-	28	36	-	0	64	41	3	-
Imp-1	N10-1	33	33	0	0	67	134	96	-	49	64	-	1	114	74	8	-
	N8-1	43	43	1	1	86	156	132	-	55	55	-	2	153	96	10	-
Rehab/Imp-1	P2-51	17	27	2	2	45	77	59	-	20	31	-	4	55	15	1	-
	P8-59	3	9	0	0	19	36	24	-	15	19	-	0	36	22	1	-
Imp-1	P2-67	11	11	0	0	23	42	36	-	18	23	-	0	41	26	3	-
	P10-88	8	9	0	0	17	34	24	-	12	16	-	0	29	17	2	-
Rehab/Imp-1	P2-49	10	10	0	0	41	29	55	-	15	19	-	0	34	22	2	-
	P2-64	5	5	0	0	10	19	16	-	8	10	-	0	18	12	1	-
Imp-1	P8-18	2	3	0	0	6	10	7	-	3	5	-	0	8	4	0	-
	P2-53	6	7	0	0	13	23	20	-	10	13	-	0	23	13	1	-
Rehab/Imp-1	P1-47	4	4	0	0	9	15	13	-	6	8	-	0	15	9	1	-
	P10-72	3	3	0	0	7	13	11	-	6	7	-	0	12	8	1	-
Imp-1	P8-42	11	11	0	0	22	44	31	-	17	22	-	0	39	25	2	-
	P2-67	2	2	0	0	4	5	5	-	3	4	-	0	6	4	0	-
Rehab/Imp-1	P8-17	2	2	0	0	4	7	6	-	2	4	-	0	6	3	0	-
	P5-80	11	11	0	0	22	39	33	-	16	21	-	0	37	24	3	-
Imp-2	P1-18	12	12	0	0	24	44	37	-	18	24	-	0	43	27	3	-
	P1-33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New	N3-1	-	-	-	-	-	-	-	-	9	12	-	1	22	11	1	-
	Const.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rehab/Imp-1	B1-30	3	3	0	0	7	14	10	-	5	7	-	0	12	8	1	-
	B10-61	21	22	0	0	43	75	65	-	31	41	-	1	73	43	4	-
Minor (Barangay)	B0-282	14	16	0	0	31	60	43	-	21	28	-	1	50	29	3	-
	B0-141	6	6	0	0	12	22	18	-	9	12	-	0	22	14	1	-
Imp-1	B8-10	-	-	-	-	-	-	-	-	20	40	-	0	5	3	0	-
	B4-63	4	4	0	0	6	14	13	-	6	8	-	0	14	8	1	-
Rehab/Imp-1	B0-91	3	3	0	0	7	12	10	-	5	7	-	0	12	7	1	-
	B1-12	10	10	0	0	19	34	29	-	14	19	-	0	33	20	2	-
Imp-1	B0-191	2	2	0	0	4	7	7	-	3	4	-	0	7	3	0	-
	B2-147	2	2	0	0	4	8	5	-	5	6	-	0	11	8	1	-
Rehab/Imp-1	B0-31	3	3	0	0	7	11	10	-	5	7	-	0	12	8	1	-
	B3-20	3	3	0	0	7	13	9	-	5	7	-	0	12	8	1	-
New	B10-87	-	-	-	-	-	-	-	-	16	88	-	0	9	6	1	-
	B8-9	-	-	-	-	-	-	-	-	4	5	-	0	5	1	0	-
Const.	B6-24	-	-	-	-	-	-	-	-	2	3	-	0	1	0	-	-
	Const.	-	-	-	-	-	-	-	-	28	23	-	0	8	1	0	-

APPENDIX 13-3

PROPOSED IMPROVEMENT (AGUSAN DEL NORTE)

AGUSAN DEL NORTE

Primary Major

Type of Road Number	Length (km)	1992 AADT	Existing Condition	Proposed Improvement	Proposed Bridge (Number/Total Length)	Cost (Million Peso)	IRR (%)	
Impr't		w/o with	L Width	Type Condition		Road	Bridge Total	
Rehab/Imp-1	30.3	82	30.3	3.6-6.0 GRV Bad/V.Bad	Rehab(6.0-GRV) 2-lane Br (n=10, L=271m)	24.52	17.94 42.45	10.7 (T)

(T):Traffic Project
(D):Development Project

ACUSAN DEL NORTE

Secondary Major

Type of Improvement	Road Number	Length (km)	1992 AADT w/o with	Existing Condition		Proposed Improvement	Proposed Bridge (Number/Total Length)	Cost (Million Peso)	IRR (%)
				L	Width Type Condition				
Rehab/Imp-1	B0-81	1.7	0	236	1.7	4.0-6.0 GRV Bad/V.Bad	Imp-1(6.0-BMP)	2.78 .00	2.78 100.0 (T)
	P10-70	5.6	228	287	4.7	5.6-6.0 GRV Bad	Imp-1(6.0-BMP)	10.12	8.38 18.60 21.9 (T)
					.9	5.6 GRV Fair	Imp-2(6.0-BMP)		
	P4-75	7.1	225	282	.7	5.4 PCC Good	-	10.04	6.69 16.73 18.5 (T)
					4.6	5.5-6.0 GRV Bad/V.Bad	Imp-1(6.0-BMP)		
					1.8	6.0 GRV Fair	Imp-2(6.0-BMP)		
	N11-1	14.6	68	108	13.8	4.5-5.5 GRV Bad/V.Bad	Rehab(6.0-GRV)	11.45	.00 11.45 16.9 (D)
					.8	5.0 EAR V.Bad	Imp-1(6.0-GRV)		
	P6-43	16.0	0	39	5.2	4.0 EAR Bad/V.Bad	Imp-1(6.0-GRV)	10.64	6.78 17.41 16.3 (D)
					2.0	None	New-C(6.0-GRV)		
					1.0	4.5 GRV Fair	Widen(6.0-GRV)		
					7.8	3.6-4.5 GRV Bad/V.Bad	Rehab(6.0-GRV)		
	P4-77	3.1	9	13	3.1	4.0-5.0 EAR V.Bad	Imp-1(4.0-GRV)	2.23	1.72 3.94 14.9 (D)
	P4-76	3.6	14	53	3.6	4.5 GRV V.Bad	Rehab(6.0-GRV)	7.86	.00 7.86 11.2 (D)
	B6-2	4.4	24	41	4.4	3.6-5.5 EAR Bad/V.Bad	Imp-1(6.0-GRV)	3.25	15.76 19.01 9.5 (D)
Imp-2/Widen	C0-1	2.8	0	236	2.8	4.5 GRV Fair	Imp-2(6.0-BMP)	4.47	.00 4.47 100.0 (T)
New Const.	B0-82	5.5	0	236	5.5	None	New-C(6.0-BMP)	12.81	10.91 23.72 71.1 (T)
	B6-5	9.4	30	48	1.5	5.6 GRV Fair	Rehab(6.0-GRV)	9.41	.00 9.41 10.4 (D)
					1.5	3.6 GRV Bad	Imp-1(6.0-GRV)		
					.9	3.2 EAR V.Bad	New-C(6.0-GRV)		
					5.5	None			
	P10-71	20.6	0	18	2.1	4.0 GRV Bad	Rehab(4.0-GRV)	27.43	.00 27.43 6.0 (D)
					18.5	None	New-C(4.0-GRV)		
	B4-39	5.5	0	8	5.5	None	New-C(4.0-GRV)	4.54	.00 4.54 2.6 (D)
	B4-94	8.8	0	14	1.1	2.8 EAR V.Bad	Imp-1(4.0-GRV)	11.53	1.94 13.47 .5 (D)
					7.7	None	New-C(4.0-GRV)		

(T):Traffic Project
(D):Development Project

AGUSAN DEL NORTE

Minor(National/Provincial)

Type of Impmt	Road Number	Length (km)	1992 AADT		Existing Condition		Proposed Improvement	Proposed Bridge (Number/Total Length)	Cost (Million Peso)		IRR (%)		
			w/o	with	L	Width			Type	Condition		Road	Bridge Total
Rehab/Imp-1	P2-44	3.7	45	75	3.7	5.5	GRV V.Bad	Rehab(6.0-GRV)	2-lane Br (n= 2,L= 120m)	2.32 .00	2.32	22.1 (D)	
	M12-1	2.5	35	64	4	6.7	FCC Good	Rehab(6.0-GRV)	2-lane Sp (n= 2,L= 45m)	1.39 .00	1.39	13.9 (D)	
	P8-8	1.6	36	64	5	6.0	GRV Fair	Rehab(6.0-GRV)	2-lane Br (n= 2,L= 30m)	.83 .00	.83	13.1 (D)	
	M10-1	11.0	67	114	11.0	5.5-6.0	GRV Bad/V.Bad	Rehab(6.0-GRV)	2-lane Br (n= 2,L= 30m)	7.59	2.36	9.95	12.6 (D)
	M5-1	16.5	86	153	11.9	6.0	GRV Fair	Rehab(6.0-GRV)	2-lane Br (n= 2,L= 120m)	3.65	7.70	11.35	10.7 (D)
	P2-51	7.4	46	55	6.9	4.0	GRV V.Bad	Rehab(6.0-GRV)	2-lane Sp (n= 2,L= 30m)	4.66	.46	5.12	8.8 (D)
	P2-69	3.0	3	11	1.9	2.4-2.8	GRV Bad/V.Bad	Imp-1(6.0-GRV)	2-lane Sp (n= 2,L= 30m)	1.50 .00	1.50	7.1 (D)	
	P2-57	4.5	19	36	4.6	4.5	GRV V.Bad	Rehab(4.0-GRV)	2-lane Sp (n= 2,L= 30m)	2.89 .00	2.89	5.0 (D)	
	P10-68	5.5	23	41	5.5	3.6	GRV Bad	New-C(4.0-GRV)	2-lane Br (n= 1,L= 25m)	3.46	1.58	5.04	4.8 (D)
	P2-49	6.0	17	29	6.0	4.0-6.0	GRV Bad/V.Bad	Rehab(6.0-GRV)	2-lane Br (n= 1,L= 25m)	3.77 .00	3.77	4.7 (D)	
	P2-64	7.2	20	34	6.0	2.8-4.0	GRV V.Bad	Rehab(6.0-GRV)	2-lane Sp (n= 3,L= 35m)	4.51	.54	5.05	4.3 (D)
	P8-16	1.8	10	18	1.7	6.0	GRV Fair	Rehab(4.0-GRV)	2-lane Sp (n= 3,L= 35m)	.50 .00	.50	3.2 (D)	
	P2-53	1.9	6	8	1.9	4.5-5.0	GRV Bad/V.Bad	Rehab(4.0-GRV)	2-lane Sp (n= 3,L= 35m)	.87 .00	.87	2.3 (D)	
	P2-47	3.0	13	23	3.0	4.0	GRV Bad	Rehab(4.0-GRV)	2-lane Sp (n= 1,L= 20m)	1.36	.23	1.59	1.1 (D)
	P10-72	2.2	9	15	2.2	3.6	GRV Bad	Rehab(4.0-GRV)	2-lane Sp (n= 1,L= 25m)	1.88	1.16	3.04	.0 (D)
	P6-42	1.6	7	12	1.6	4.0	GRV Bad	Rehab(4.0-GRV)	2-lane Sp (n= 1,L= 25m)	.72	1.16	1.89	.0 (D)
	P2-67	6.5	22	39	6.6	4.0-6.0	GRV Bad/V.Bad	Rehab(6.0-GRV)	2-lane Sp (n= 1,L= 25m)	4.73 .00	4.73	.0 (D)	
	P8-17	1.7	4	5	1.7	4.0-5.5	GRV Bad	Rehab(4.0-GRV)	2-lane Sp (n= 1,L= 25m)	.77 .00	.77	.0 (D)	
	P5-80	1.1	4	6	1.1	4.5	EAR Bad	Imp-1(4.0-GRV)	2-lane Sp (n= 1,L= 20m)	.50	1.01	1.51	.0 (D)
Imp-2/Widen	P1-18	1.9	22	37	1.9	4.5	GRV Fair	Widen(6.0-GRV)	2-lane Sp (n= 1,L= 20m)	.99 .00	.99	3.1 (D)	
	P1-33	4.6	24	43	3.4	4.5	GRV Fair	Widen(6.0-GRV)	2-lane Sp (n= 1,L= 20m)	2.47 .00	2.47	.0 (D)	
New Const.	N3-1	10.5	0	22	2.0	4.0-5.5	GRV Fair	Rehab(6.0-GRV)	2-lane Sp (n= 1,L= 20m)	5.95 .00	5.95	15.9 (D)	

(F):Traffic Project
(D):Development Project

ACUSAN DEL NORTE

Minor (Barangay)

Type of Road	Length (km)	1992 AADT w/o with	L	Width	Existing Condition	Proposed Improvement	Proposed Bridge (Number/Total Length)	Cost (Million Peso)	IHR (%)
Rehab/Imp-1	1.3	7	12	.8 .5	EAR V. Bad GRV Fair	Imp-1(4.0-GRV)		.37	11.9 (D)
B10-51	2.5	5	17	2.1 .4	GRV Bad/V. Bad EAR V. Bad	Rehab(4.0-GRV) Imp-1(4.0-GRV)		1.24	10.4 (D)
B0-262	11.4	43	73	7.7 3.7	4.0-5.5 GRV Bad 4.8-6.6 GRV Fair	Rehab(4.0-GRV)		3.65	7.8 (D)
B0-141	7.6	31	50	7.5	3.6 GRV V. Bad	Rehab(4.0-GRV)		3.40	7.7 (D)
B8-10	1.1	12	22	1.1	5.5 GRV Bad	Rehab(4.0-GRV)		.50	5.8 (D)
B4-63	1.0	0	6	1.0	2.4-2.8 EAR Bad/V. Bad	Imp-1(4.0-GRV)		.68	5.2 (D)
B0-91	1.8	8	14	1.0 .8	5.5 GRV Fair 4.5 GRV Bad	Rehab(4.0-GRV)		.37	5.2 (D)
B1-12	1.8	7	12	1.8	5.5-6.0 GRV Bad	Rehab(4.0-GRV)		.78	2.5 (D)
B0-191	6.3	19	33	6.3	3.6-4.0 GRV Bad	Rehab(4.0-GRV)		2.73	2.1 (D)
B2-147	1.0	5	7	1.0	4.0-4.5 GRV Bad	Rehab(4.0-GRV)		.45	1.5 (D)
B0-31	1.0	4	7	1.0	4.5 GRV Bad	Rehab(4.0-GRV)		.45	.0 (D)
B3-20	1.3	7	11	1.3	6.0 GRV Bad	Rehab(4.0-GRV)		.60	.0 (D)
B10-87	3.5	7	12	.8 2.7	3.6 GRV Bad 3.6 EAR Bad	Rehab(4.0-GRV) Imp-1(4.0-GRV)		1.59	1.87 (D)
B8-9	3.0	0	9	1.0 2.0	2.4 GRV Bad None	Rehab(4.0-GRV) New-C(4.0-GRV)		1.86	10.5 (D)
B6-24	1.4	0	5	1.4	None	New-C(4.0-GRV)		.90	2.9 (D)

(T):Traffic Project
(D):Development Project

APPENDIX 13-4

PROPOSED IMPROVEMENT (AGUSAN DEL NORTE)

AGUSAN DEL NORTE

Quantity and Construction Cost

	Unit	N8-1	B0-81	P10-70	P4-75	N11-1	P6-43	P4-77	P4-76	B6-2	CO-1	B0-82
Total Road Length	km	30.3	1.7	5.5	7.1	14.5	16.0	3.1	3.6	4.4	2.8	5.5
Improvement Length	km	30.3	1.7	5.5	6.4	14.6	16.0	3.1	3.6	4.4	2.8	5.5
Proposed Pavement Type		5.0-GRV 6.0-BMP 6.0-BMP 6.0-GRV 6.0-GRV 6.0-GRV 6.0-GRV 6.0-GRV 6.0-GRV 6.0-GRV 6.0-BMP 6.0-BMP										
Quantity												
100 Clearing & Grubbing	m2	-	-	-	-	-	-	-	-	-	-	110000
102 Stripping	m3	-	-	-	-	-	-	-	-	-	-	11580
105 Roadway & Drainage Excavation	m3	43135	525	16498	6154	15436	18290	7808	30715	9239	475	5500
107 Borrow	m3	20693	1210	-	-	3092	7850	851	729	2015	4502	24760
108 Aggregate Subbase	m3	19998	3560	9837	12322	9836	10110	1426	2376	2904	4603	11517
118-1 Preparation of Prev.Road(Grvl)	m2	186610	15294	44006	58732	85390	94740	14260	19030	25400	12600	-
118-2 Preparation of Prev.Road(Asph)	m2	-	-	-	-	-	-	-	-	-	-	-
118-3 Preparation of Pave.Surf.(PCC)	m2	-	-	-	-	-	-	-	-	-	-	-
118-4 Preparation of Pave.Surf.(AC)	m2	-	-	-	-	-	-	-	-	-	-	-
200 Crushed Aggregate Base Course	m3	-	1739	5729	6547	12997	14400	1392	2430	3950	2864	5627
300 Crushed Aggr. Surface Course	m3	26676	-	-	-	-	-	-	-	-	-	-
302 Bituminous Prime Coat	M.I.	-	12	40	46	-	-	-	-	-	20	40
303 Bituminous Tack Coat	M.I.	-	-	-	-	-	-	-	-	-	-	16800
305 Bituminous Macadam Pavement	m2	-	10200	38400	-	-	-	-	-	-	-	33000
310 Bitum.Concrete Surface Course	M.I.	-	-	-	-	-	-	-	-	-	-	-
314 Double Bitum.Surface Treatment	m2	-	-	-	-	-	-	-	-	-	-	-
316-1 PCC Pavement (t=23 cm)	m2	-	-	-	-	-	-	-	-	-	-	-
316-2 PCC Pavement (t=20 cm)	m2	-	-	-	-	-	-	-	-	-	-	-
316-3 PCC Pavement (t=18 cm)	m2	3960	-	-	-	1620	-	3120	5400	-	-	-
413-1 RCPC (dia.910mm)	m	915	45	165	195	435	480	48	105	135	90	255
413-2 Headwall for RCPC (dia.910mm)	Set	61	3	11	13	29	32	6	7	9	6	17
500 Grouted Riprap	m3	-	-	-	-	-	-	-	-	-	-	-
517 Side Ditch (Grouted Riprap)	m	9450	-	2900	-	6700	1600	-	1800	650	-	2200
Slope Protection (Cut Slope)	m	-	-	-	-	-	-	-	100	-	-	-
Slope Protection (Embank't Sl)	m	-	-	-	-	-	-	-	20	-	-	-
2-lane Bridge, Superstructure	m	271	-	140	120	-	97	30	-	298	-	190
1-lane Bridge, Superstructure	m	-	-	-	-	-	-	-	-	-	-	-
2-lane Bridge, Abutment	Each	20	-	5	2	-	10	-	-	5	-	6
1-lane Bridge, Abutment	Each	-	-	-	-	-	-	-	-	-	-	-
2-lane Bridge, Pier	Each	5	-	4	5	-	-	4	-	8	-	6
1-lane Bridge, Pier	Each	-	-	-	-	-	-	-	-	-	-	-
2-lane Spillway	m	-	-	-	-	-	-	-	-	-	-	-
1-lane Spillway	m	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	I.S.	1	1	1	1	1	1	1	1	1	1	1
Road Construction Cost	M.P.	24.52	2.78	10.12	10.04	11.45	10.54	2.23	7.85	3.25	4.47	12.81
Bridge Construction Cost	M.P.	17.94	.00	8.38	6.69	.00	6.78	1.72	1.72	16.76	.00	10.91
Total Construction Cost	M.P.	42.45	2.78	18.60	16.73	11.45	17.41	3.94	7.86	19.01	4.47	23.72
Road Construction Cost/Impr't km	M.P./km	.81	1.64	1.81	1.57	.78	.66	.72	2.16	.74	1.60	2.33
Total Construction Cost/Total km	M.P./km	1.40	1.64	3.30	2.36	.78	1.09	1.27	2.18	4.32	1.60	4.31

Quantity and Construction Cost

ACUSAN DEL NORTE

Unit	B5-5	F10-71	B4-39	B4-34	P2-44	N12-1	P8-8	N10-1	N5-1	P2-51	P2-59
Total Road Length	9.4	20.6	5.5	8.8	3.7	2.5	1.8	11.0	16.5	7.4	3.0
Improvement Length	7.9	20.6	5.5	8.8	3.7	2.1	1.3	11.0	4.6	7.4	3.0
Proposed Pavement Type	6.0-GRV	4.0-GRV	4.0-GRV	4.0-GRV	6.0-GRV	6.0-GRV	6.0-GRV	6.0-GRV	6.0-GRV	6.0-GRV	4.0-GRV
Quantity	92400	407000	-	169400	-	-	-	-	-	-	11000
100 Clearing & Grubbing	10080	44400	-	18480	-	-	-	-	-	-	1100
102 Striping	36694	131080	46574	58856	2775	675	975	8881	5867	5550	1755
105 Roadway & Drainage Excavation	11016	44014	1114	18048	2091	2387	735	4475	1024	4181	2685
107 Borrow	5214	9475	2530	4048	2442	1386	858	7250	3036	4884	1380
108 Aggregate Subbase	17810	9660	13900	3080	24420	13860	8680	71150	30360	48840	8740
118-1 Preparation of Prev. Road (Grvl)	-	-	-	-	-	-	-	-	-	-	-
118-2 Preparation of Prev. Road (Asph)	-	-	-	-	-	-	-	-	-	-	-
118-3 Preparation of Pave. Surf. (PCC)	-	-	-	-	-	-	-	-	-	-	-
118-4 Preparation of Pave. Surf. (AC)	-	-	-	-	-	-	-	-	-	-	-
200 Crushed Aggregate Base Course	7110	12360	3300	5280	3330	1890	1170	9900	4140	6660	1800
300 Bituminous Prime Coat	-	-	-	-	-	-	-	-	-	-	-
302 Bituminous Tack Coat	-	-	-	-	-	-	-	-	-	-	-
303 Bituminous Macadam Pavement	-	-	-	-	-	-	-	-	-	-	-
310 Bitum. Concrete Surface Course	-	-	-	-	-	-	-	-	-	-	-
314 Double Bitum. Surface Treatment	-	-	-	-	-	-	-	-	-	-	-
316-1 PCC Pavement (t=23 cm)	-	-	-	-	-	-	-	-	-	-	-
316-2 PCC Pavement (t=20 cm)	-	-	-	-	-	-	-	-	-	-	-
318-3 PCC Pavement (t=18 cm)	-	-	-	-	-	-	-	-	-	-	-
413-1 RCPC (dia. 910mm)	360	1142	88	481	105	60	45	330	135	225	56
413-2 Headwall for RCPC (dia. 910mm)	24	78	11	33	7	4	3	22	9	15	7
500 Grouted Riprap	4040	12950	-	5390	-	-	-	2400	2300	-	-
517 Slope Protection (Grouted Riprap)	-	-	-	-	-	-	-	-	-	-	-
Slope Protection (Cut-Slope)	-	-	-	-	-	-	-	-	-	-	-
Slope Protection (Embank't Sl)	-	-	-	-	-	-	-	-	-	-	-
2-lane Bridge, Superstructure	-	-	-	-	-	-	-	30	120	-	-
1-lane Bridge, Superstructure	-	-	-	24	-	-	-	-	-	-	-
2-lane Bridge, Abutment	-	-	-	-	-	-	-	4	4	-	-
1-lane Bridge, Abutment	-	-	-	-	-	-	-	-	-	-	-
2-lane Bridge, Pier	-	-	-	6	-	-	-	-	4	-	-
1-lane Bridge, Pier	-	-	-	-	-	-	-	-	-	-	-
2-lane Spillway	-	-	-	-	-	-	-	-	45	30	-
1-lane Spillway	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	1	1	1	1	1	1	1	1	1	1	1
Road Construction Cost	9.41	27.43	4.54	11.53	2.32	1.39	.83	7.59	3.65	4.66	1.50
Bridge Construction Cost	.00	.00	.00	1.94	.00	.00	.00	2.36	7.70	.46	.00
Total Construction Cost	9.41	27.43	4.54	13.47	2.32	1.39	.83	9.95	11.35	5.12	1.50
Road Construction Cost/Impr't km	1.19	1.33	.83	1.31	.63	.56	.64	.79	.79	.63	.50
Total Construction Cost/Total km	1.00	1.33	.83	1.53	.63	.56	.46	.90	.69	.69	.50

Quantity and Construction Cost

AGUSAN DEL NORTE

	Unit	P2-57	P10-68	P2-49	P2-64	P8-16	P2-53	P2-47	P2-67	P5-80	P8-17	P6-42
Total Road Length	km	4.6	5.5	6.0	7.2	1.8	1.9	3.0	6.6	1.1	1.7	1.6
Improvement Length	km	4.6	5.5	6.0	7.2	1.1	1.9	3.0	6.6	1.1	1.7	1.6
Proposed Pavement Type		6.0-GRV	6.0-GRV	6.0-GRV	6.0-GRV	4.0-GRV	4.0-GRV	6.0-GRV	4.0-GRV	4.0-GRV	4.0-GRV	4.0-GRV
Quantity												
100 Clearing & Grubbing	m2	-	-	-	-	-	-	-	-	-	-	-
102 Stripping	m3	-	-	-	-	-	-	-	-	-	-	-
105 Roadway & Drainage Excavation	m3	3450	4125	4500	6108	825	1425	2250	6073	825	1275	1200
107 Borrow	m3	2599	3108	3390	3804	622	1074	1695	3222	622	961	904
108 Aggregate Subbase	m3	3036	3630	3960	4272	506	874	1380	4355	506	782	736
118-1 Preparation of Prev. Road (Grv1)	m2	30360	36300	39600	44400	5060	8740	13800	41040	5060	7820	7360
118-2 Preparation of Prev. Road (Asph)	m2	-	-	-	-	-	-	-	-	-	-	-
118-3 Preparation of Pav. Surf. (PCC)	m2	-	-	-	-	-	-	-	-	-	-	-
118-4 Preparation of Pav. Surf. (AC)	m2	-	-	-	-	-	-	-	-	-	-	-
200 Crushed Aggr. Base Course	m3	-	-	-	-	-	-	-	-	-	-	-
300 Crushed Aggr. Surface Course	m3	4140	4950	5400	6390	660	1140	1800	5670	660	1020	960
302 Bituminous Prime Coat	M.T.	-	-	-	-	-	-	-	-	-	-	-
303 Bituminous Tack Coat	M.T.	-	-	-	-	-	-	-	-	-	-	-
306 Bituminous Macadam Pavement	m2	-	-	-	-	-	-	-	-	-	-	-
310 Bitum. Concrete Surface Course	M.T.	-	-	-	-	-	-	-	-	-	-	-
314 Double Bitum. Surface Treatment	m2	-	-	-	-	-	-	-	-	-	-	-
316-1 FCC Pavement (t=23 cm)	m2	-	-	-	-	-	-	-	-	-	-	-
316-2 FCC Pavement (t=20 cm)	m2	-	-	-	600	-	-	-	1800	-	-	-
316-3 FCC Pavement (t=18 cm)	m2	-	-	-	210	16	32	48	195	16	24	24
413-1 RCPC (dia. 910mm)	Set	135	155	180	210	2	4	6	13	2	3	3
413-2 Headwall for RCPC (dia. 910mm)	Set	9	11	12	14	-	-	-	-	-	-	-
500 Grouted Riprap	m3	-	-	-	-	-	-	-	700	-	-	-
517 Side Ditch (Grouted Riprap)	m	-	-	-	-	-	-	-	-	-	-	-
Slope Protection (Cut Slope)	m	-	-	-	-	-	-	-	-	-	-	-
Slope Protection (Embank't Sl)	m	-	-	-	-	-	-	-	-	-	-	-
2-lane Bridge, Superstructure	m	-	25	-	-	-	-	-	-	-	-	-
1-lane Bridge, Superstructure	m	-	-	-	-	-	-	-	-	20	-	25
2-lane Bridge, Abutment	Each	-	2	-	-	-	-	-	-	-	-	2
1-lane Bridge, Abutment	Each	-	-	-	-	-	-	-	-	-	-	-
2-lane Bridge, Pier	Each	-	-	-	-	-	-	-	-	-	-	-
1-lane Bridge, Pier	Each	-	-	-	-	-	-	-	-	-	-	-
2-lane Spillway	m	-	-	-	35	-	-	-	-	-	-	-
1-lane Spillway	m	-	-	-	-	-	-	20	-	-	-	-
Miscellaneous	l.s.	1	1	1	1	1	1	1	1	1	1	1
Road Construction Cost	M.P.	2.89	3.46	3.77	4.51	.50	.87	1.36	4.73	.50	.77	.72
Bridge Construction Cost	M.P.	.00	1.58	.00	.54	.00	.00	.23	.00	1.01	.00	1.16
Total Construction Cost	M.P.	2.89	5.04	3.77	5.05	.50	.87	1.59	4.73	1.51	.77	1.89
Road Construction Cost/Impr't km	M.P./km	.63	.63	.63	.63	.46	.46	.45	.72	.45	.45	.45
Total Construction Cost/Total km	M.P./km	.63	.92	.63	.70	.28	.46	.63	.72	1.37	.45	1.18

Quantity and Construction Cost

AGUSAN DEL NORTE

	Unit	P10-72	P1-18	P1-33	N3-1	B1-30	B10-61	B0-262	B0-141	B8-10	B4-63	B0-91	
Total Road Length	km	2.2	1.9	4.6	10.5	1.3	2.5	11.4	7.6	1.1	1.0	1.8	
Improvement Length	km	2.2	1.9	4.6	8.5	1.3	2.5	7.7	7.6	1.1	1.0	1.8	
Proposed Pavement Type		4.0-GRV 6.0-GRV 5.0-GRV 6.0-GRV 4.0-GRV 4.0-GRV 4.0-GRV 4.0-GRV 4.0-GRV 4.0-GRV 4.0-GRV 4.0-GRV 4.0-GRV											
Quantity													
100 Clearing & Grubbing	m2				105000								
102 Stripping	m3				10500								
105 Roadway & Drainage Excavation	m3	1650	2451	5285	24703	600	2325	5351	6412	825	1875	600	
107 Borrow	m3	4952	585	1561	3209	452	1268	4042	3584	522	203	452	
108 Aggregate Subbase	m3	1012	389	1506	4210	368	1150	3542	3495	505	450	368	
118-1 Preparation of Prev. Road (Grvl)	m2	10120	8550	23220	9450	3680	11380	35420	32850	5060	2600	3680	
118-2 Preparation of Prev. Road (Asph)	m2												
118-3 Preparation of Pave. Surf. (PCC)	m2												
118-4 Preparation of Pave. Surf. (AC)	m2												
200 Crushed Aggregate Base Course	m3												
300 Crushed Aggr. Surface Course	m3	1320	1710	4140	5550	480	1428	4458	4560	660	432	480	
302 Bituminous Prime Coat	M.T.												
303 Bituminous Tack Coat	M.T.												
305 Bituminous Macadam Pavement	m2												
310 Bitum. Concrete Surface Course	M.T.												
314 Double Bitum. Surface Treatment	m2												
316-1 FCC Pavement (t=23 cm)	m2												
316-2 FCC Pavement (t=20 cm)	m2												
316-3 FCC Pavement (t=18 cm)	m2												
413-1 RCPC (dia. 910mm)	m	48	60	135	269	16	480	1080	120	16	1120	16	
413-2 Headwall for RCPC (dia. 910mm)	Set	6	4	9	31	2	6	15	15	2	2	2	
500 Grouted Riprap	m3	770											
517 Side Ditch (Grouted Riprap)	m				750								
Slope Protection (Cut Slope)	m												
Slope Protection (Embank't Sl)	m												
1-lane Bridge, Superstructure	m	25											
2-lane Bridge, Superstructure	m												
1-lane Bridge, Abutment	Each												
2-lane Bridge, Abutment	Each	2											
2-lane Bridge, Pier	Each												
1-lane Bridge, Pier	Each												
1-lane Spillway	m												
1-lane Spillway	m												
Miscellaneous	l.s.	1	1	1	1	1	1	1	1	1	1	1	
Road Construction Cost	M.P.	1.88	.99	2.47	5.95	.37	1.24	3.65	3.40	.50	.68	.37	
Bridge Construction Cost	M.P.	1.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Total Construction Cost	M.P.	3.04	.99	2.47	5.95	.37	1.24	3.65	3.40	.50	.68	.37	
Road Construction Cost/Impr't km	M.P.	.85	.52	.54	.70	.46	.50	.47	.45	.45	.68	.45	
Total Construction Cost/Total km	M.P.	1.38	.52	.54	.57	.28	.50	.32	.45	.45	.68	.21	

Quantity and Construction Cost AGUSAN DEL NORTE

	Unit	B1-12	B0-191	B2-147	B3-20	B0-31	B10-87	B8-9	B6-24
Total Road Length	km	1.8	5.3	1.0	1.3	1.0	3.5	3.0	1.4
Improvement Length	km	1.8	5.3	1.0	1.3	1.0	3.5	3.0	1.4
Proposed Pavement Type		4.0-GRV	4.0-GRV	4.0-GRV	4.0-GRV	4.0-GRV	4.0-GRV	4.0-GRV	4.0-GRV
Quantity									
100 Clearing & Grubbing	m2	-	-	-	-	-	-	24000	21000
102 Stripping	m3	-	-	-	-	-	-	2400	2100
106 Roadway & Drainage Excavation	m3	900	4674	750	975	750	2625	2750	3500
107 Borrow	m3	812	2400	595	735	565	1978	1695	581
108 Aggregate Subbase	m3	828	2698	460	598	460	1610	1380	644
118-1 Preparation of Prev. Road (Grvl)	m2	8280	27020	4600	5980	4600	18100	4600	-
118-2 Preparation of Prev. Road (Asph)	m2	-	-	-	-	-	-	-	-
118-3 Preparation of Pave. Surf. (PCC)	m2	-	-	-	-	-	-	-	-
118-4 Preparation of Pave. Surf. (AC)	m2	-	-	-	-	-	-	-	-
200 Crushed Aggregate Base Course	m3	-	-	-	-	-	-	-	-
300 Crushed Aggr. Surface Course	m3	1080	3780	600	780	600	2100	1800	840
302 Bituminous Prime Coat	M.I.	-	-	-	-	-	-	-	-
303 Bituminous Tack Coat	M.I.	-	-	-	-	-	-	-	-
306 Bituminous Macadam Pavement	m2	-	-	-	-	-	-	-	-
310 Bitum. Concrete Surface Course	M.T.	-	-	-	-	-	-	-	-
314 Double Bitum. Surface Treatment	m2	-	-	-	-	-	-	-	-
316-1 PCC Pavement (t=23 cm)	m2	-	-	-	-	-	-	-	-
316-2 PCC Pavement (t=20 cm)	m2	-	-	-	-	-	-	-	-
316-3 PCC Pavement (t=18 cm)	m2	-	-	-	-	-	-	-	-
413-1 RCPC (dia. 910mm)	m	32	104	16	24	16	56	80	48
413-2 Headwall for RCPC (dia. 910mm)	Set	4	13	2	3	2	7	10	6
500 Grouted Riprap	m3	-	-	-	-	-	-	-	-
517 Side Ditch (Grouted Riprap)	m	-	-	-	-	-	-	-	-
Slope Protection (Cut Slope)	m	-	-	-	-	-	-	-	-
Slope Protection (Embank't Sl)	m	-	-	-	-	-	-	-	-
2-lane Bridge, Superstructure	m	-	-	-	-	-	-	-	-
1-lane Bridge, Superstructure	m	-	20	-	-	-	-	-	-
2-lane Bridge, Abutment	Each	-	-	-	-	-	-	-	-
1-lane Bridge, Abutment	Each	-	2	-	-	-	-	-	-
2-lane Bridge, Pier	Each	-	-	-	-	-	-	-	-
1-lane Bridge, Pier	Each	-	-	-	-	-	-	-	-
2-lane Spillway	m	-	-	-	-	-	-	-	-
1-lane Spillway	m	-	35	-	-	-	25	-	-
Miscellaneous	M.S.	1	1	1	1	1	1	1	1
Road Construction Cost	M.P.	.78	2.73	.46	.60	.45	1.59	1.56	.90
Bridge Construction Cost	M.P.	.00	1.41	.00	.00	.00	.28	.00	.00
Total Construction Cost	M.P.	.78	4.14	.46	.60	.45	1.87	1.56	.90
Road Construction Cost/Impr't Km	M.P.	.43	.43	.45	.46	.45	.45	.52	.64
Total Construction Cost/Total Km	M.P.	.43	.66	.45	.46	.45	.54	.52	.64

APPENDIX 13-5

SUMMARY OF DEMOGRAPHIC AND AGRICULTURAL DATA
(AGUSAN DEL NORTE)

Summary of Demographic and Agricultural Data

AGUSAN DEL NORTE

Class of Road	Type of Impr't	Road Number	Road Length		1988 Population		1988 Crop Area (ha)		Major Crop	1992 AADT	IRR (%)		
			(km)	Total	Total	/km	Total	% with					
Second'y Major	Rehab/Imp-1	N11-1	14.6	6541	448	3000	1700(Palay)	600(Coco.)	500(Banan)	200(Corn)	68	108	16.9
	Imp-1	P6-43	16.0	4280	258	1220	420(Palay)	200(Corn)	200(Vege.)	200(Banan)	0	39	16.3
		P4-77	3.1	1419	458	210	150(Coco.)	40(Banan)	20(Palay)		9	13	14.9
		P4-76	3.6	3826	1063	1100	800(Corn)	200(Banan)	100(Palay)		14	53	11.2
		B6-2	4.4	2595	550	310	100(Coffe)	80(Palay)	80(Corn)	50(Banan)	24	41	9.5
		B6-6	9.4	5141	547	1370	400(Corn)	300(Coffe)	270(Palay)	150(Banan)	30	48	10.4
Minor (Nat'l/Prov'l)	Const.	P10-71	20.6	4276	208	1090	650(Coco.)	300(Banan)	140(Corn)		0	18	6.0
		B4-39	5.5	1851	337	400	250(Coco.)	100(Banan)	50(Palay)		0	8	2.6
		B4-34	8.8	3369	383	980	700(Coco.)	150(Banan)	100(Palay)		0	14	.5
		P2-44	3.7	4922	1330	400	300(Palay)	70(Coco.)	30(Banan)		45	75	22.1
Major	Rehab/Imp-1	N12-1	2.5	4686	1874	210	150(Palay)	50(Coco.)	10(Banan)		35	64	13.9
		P8-8	1.8	3724	2069	60	30(Coco.)	20(Corn)	10(Palay)		36	64	13.1
		N10-1	11.0	7507	682	1310	600(Palay)	400(Coco.)	300(Banan)	100(Corn)	67	114	12.6
		M5-1	18.5	8885	538	3200	1200(Palay)	750(Corn)	750(Coco.)	500(Banan)	85	153	10.7
		P2-51	7.4	1554	210	2700	1800(Palay)	600(Banan)	300(Coco.)		45	55	8.8
		P2-59	3.0	1017	389	200	100(Palay)	100(Coco.)			3	11	7.1
		P2-57	4.6	2750	598	310	200(Coco.)	50(Palay)	50(Banan)		19	35	5.0
		P10-68	5.5	2658	452	430	300(Coco.)	50(Palay)	20(Corn)		23	41	4.8
		P2-49	6.0	1793	299	280	150(Palay)	100(Coco.)	30(Banan)		17	29	4.7
		P2-64	7.2	2246	312	370	200(Coco.)	120(Palay)	50(Banan)		20	34	4.3
		P8-16	1.8	1032	573	120	100(Coco.)	10(Palay)	10(Banan)		10	18	3.2
		P2-53	1.9	478	252	180	100(Palay)	50(Coco.)	30(Banan)		6	8	2.3
		P2-47	3.0	1382	461	330	150(Palay)	150(Coco.)	30(Banan)		13	23	1.1
		P10-72	2.2	919	418	400	250(Coco.)	100(Banan)	50(Corn)		9	15	.0
		P6-42	1.6	654	409	150	50(Coco.)	50(Coffe)	30(Palay)	10(Corn)	7	12	.0
		P2-67	6.6	2750	417	200	100(Palay)	50(Corn)	50(Banan)		22	39	.0
		P8-17	1.7	370	218	110	100(Coco.)	10(Palay)			4	6	.0
		P6-80	1.1	707	543	160	50(Coco.)	50(Vege.)	30(Palay)	30(Banan)	4	6	.0
Minor (Barangay)	Imp-2/Widen	P1-18	1.9	2091	1101	170	100(Palay)	50(Coco.)	20(Banan)		22	37	3.1
		P1-33	4.6	2468	537	570	250(Coco.)	220(Palay)	100(Corn)		24	43	.0
	New Const.	N3-1	10.5	2468	235	690	300(Coco.)	200(Palay)	40(Banan)	20(Corn)	20(Root)	0	22
Major	Rehab/Imp-1	B1-30	1.3	1234	949	130	100(Coco.)	30(Banan)			7	12	11.9
		B10-61	2.5	1206	482	620	400(Coco.)	220(Corn)			5	17	10.4
		B0-262	11.4	4142	363	1480	600(Palay)	400(Coco.)	350(Banan)	100(Corn)	43	73	7.8
		B0-141	7.6	2947	388	1110	700(Palay)	200(Coco.)	150(Banan)	20(Vege.)	31	50	7.7
		B8-10	1.1	1444	1313	290	200(Coco.)	50(Corn)			12	22	5.8
		B4-63	1.0	728	728	300	200(Banan)	100(Coco.)			0	6	5.2
		B0-81	1.8	765	425	450	400(Palay)	50(Banan)			8	14	5.2
		B1-12	1.8	740	411	180	100(Coco.)	50(Banan)			7	12	2.5
		B0-191	6.3	1899	300	480	350(Palay)	100(Coco.)	30(Corn)		19	33	2.1
		B2-147	1.0	359	359	300	150(Coco.)	150(Banan)			5	7	1.5
		B0-31	1.0	494	494	90	50(Palay)	30(Corn)	10(Coco.)		4	7	.0
		B3-20	1.3	693	487	450	200(Corn)	150(Coco.)	100(Banan)		7	11	.0
		B10-87	3.5	1407	402	250	200(Coco.)	50(Corn)	10(Banan)		7	12	.0
	Minor (Barangay)	New Const.	B8-9	3.0	1111	370	270	120(Coco.)	50(Palay)	50(Corn)	50(Banan)	0	9
		B5-24	1.4	538	364	410	150(Corn)	130(Palay)	130(Coco.)		0	5	2.9

APPENDIX 13-6

SUMMARY OF ECONOMIC EVALUATION (AGUSAN DEL NORTE)

Summary of Economic Analysis

AGUSAN DEL NORTE

Cost/Benefit:1990-2016 Discounted Total

Class of Road	Type of Road	1992 AADT w/o with	Length (km)	Economic Cost (M/km)	Benefit (M/km)			Economic Indicator							
					Total Improvement	Normal Diver- led	Gene- Deve- Rated	Maintn' Total	MPV (M)	B/C	IRR (%)				
Primary Major	Rehab/ Imp-1	82	30.3	30.3(6.0-GRV)	1.16	.19	1.35	.90	-	-	.10	1.00	-10.6	.7	10.7
Second-y Major	Rehab/ Imp-1	0	286	1.7	1.7(6.0-BMP)	1.35	.41	1.77	-	30.18	5.14	35.24	56.8	19.9	100.0
	P10-70	228	287	5.6	5.6(6.0-BMP)	2.75	.41	3.23	3.51	1.17	-	4.76	8.8	1.5	21.9
	P4-76	225	282	7.1	7.1(6.0-BMP)	2.17	.48	2.65	2.84	-	.84	3.26	3.9	1.2	18.5
	N11-1	68	108	14.6	14.6(6.0-GRV)	.65	.23	.88	.77	-	.06	.69	.97	1.2	1.1
	P6-43	0	39	16.0	16.0(6.0-GRV)	.90	.16	1.07	.92	-	.11	1.15	1.3	1.3	16.3
	P4-77	9	13	3.1	3.1(4.0-GRV)	1.06	.10	1.16	.60	-	.38	1.14	.1	1.0	14.9
	P4-76	14	53	3.6	3.6(6.0-GRV)	1.82	.17	1.99	1.22	-	.17	1.50	-1.8	.8	11.2
	B6-2	24	41	4.4	4.4(6.0-GRV)	3.39	.18	3.77	.97	20.1	1.08	2.34	-6.3	.6	9.5
Imp-2/ Widen	CO-1	0	236	2.8	2.8(6.0-BMP)	1.33	.41	1.74	-	18.33	4.77	23.01	59.6	13.2	100.0
New Const.	B0-82	0	235	5.5	5.5(6.0-BMP)	3.58	.41	3.99	-	9.33	13.29	22.50	101.8	5.6	71.1
	B6-5	30	48	9.4	7.9(6.0-GRV)	.99	.17	1.16	.54	-	.08	.22	.02	.27	.7
	P10-71	0	18	20.6	20.6(4.0-GRV)	1.11	.10	1.21	.21	-	.06	.27	.01	.26	.4
	B4-39	0	8	5.5	5.5(4.0-GRV)	.69	.10	.79	.07	-	.02	.17	.01	.26	.3
	B4-34	0	14	8.8	8.8(4.0-GRV)	1.27	.10	1.37	.10	-	.03	.19	.02	.30	.2
Minor (Nat'l Prov'l)	Rehab/ Imp-1	45	76	3.7	3.7(6.0-GRV)	.52	.19	.71	.81	-	.04	.10	.03	.96	1.0
	N12-1	35	64	2.5	2.1(6.0-GRV)	.55	.16	.73	.49	-	.05	.11	.02	.68	.1
	P8-8	36	64	1.8	1.3(6.0-GRV)	.53	.18	.71	.59	-	.00	.01	.02	.62	.1
	N10-1	57	114	11.0	11.0(6.0-GRV)	.75	.23	.98	.66	-	.03	.10	.06	.84	.9
	N5-1	86	133	16.5	4.6(6.0-GRV)	2.05	.23	2.32	1.29	-	.05	.26	.07	1.97	.5
	P2-51	45	55	7.4	7.4(6.0-GRV)	.68	.16	.84	.38	-	.01	.10	.02	.50	.7
	P2-59	3	11	3.0	3.0(4.0-GRV)	.41	.10	.51	.17	-	.02	.09	.00	.26	.7
	P3-57	19	35	4.6	4.6(6.0-GRV)	.52	.15	.68	.30	-	.03	.08	.01	.33	.5
	P10-68	23	41	5.5	5.5(6.0-GRV)	.76	.15	.92	.30	-	.01	.09	.01	.41	.4
	P3-49	17	29	6.0	6.0(5.0-GRV)	.52	.15	.67	.13	-	.01	.17	.01	.32	.5
	P3-54	20	34	7.2	7.2(6.0-GRV)	.58	.15	.74	.27	-	.01	.06	.01	.25	.4
	P8-16	10	18	1.8	1.1(4.0-GRV)	.38	.10	.47	.26	-	.00	.09	.01	.20	.3
	P2-53	8	13	1.9	1.9(4.0-GRV)	.38	.10	.48	.05	-	.00	.11	.01	.17	.5
	P2-47	13	23	3.0	3.0(4.0-GRV)	.44	.10	.54	.08	-	.00	.05	.01	.18	.3
	P10-72	9	15	2.2	2.2(4.0-GRV)	1.15	.10	1.25	.16	-	.01	.09	.01	.27	.2
	P6-42	7	12	1.6	1.6(4.0-GRV)	.98	.10	1.08	.10	-	.00	.10	.01	.21	.2
	P2-67	22	39	6.6	6.6(6.0-GRV)	.60	.15	.75	.18	-	.02	.04	.01	.25	.3
	P8-17	4	6	1.7	1.7(4.0-GRV)	.37	.10	.47	.02	-	.00	.06	.01	.10	.6
	P5-80	4	6	1.1	1.1(4.0-GRV)	1.14	.10	1.24	.10	-	.03	.13	.01	.26	.1
Imp-2/ Widen	P1-18	22	37	1.8	1.8(6.0-GRV)	.43	.15	.59	.26	-	.00	.03	.01	.28	.5
	P1-33	24	43	4.6	4.6(6.0-GRV)	.45	.16	.60	.14	-	.00	.01	.02	.17	.3
New Const.	N3-1	0	22	10.5	7.0(4.0-GRV)	.58	.11	.69	.53	-	.06	.15	.02	.72	.3
Minor (Baran-gay)	Rehab/ Imp-1	7	12	1.3	8(4.0-GRV)	.38	.10	.48	.15	-	.02	.21	.01	.39	.7
	B10-6	5	17	2.5	2.5(4.0-GRV)	.41	.10	.51	.26	-	.01	.08	.01	.37	.4
	B0-262	43	73	11.4	7(4.0-GRV)	.39	.11	.52	.18	-	.00	.10	.03	.30	.6
	B0-14	31	50	7.6	7.6(4.0-GRV)	.37	.11	.49	.17	-	.01	.10	.02	.30	.4
	B8-10	12	22	1.1	1(4.0-GRV)	.36	.10	.47	.15	-	.01	.08	.01	.24	.5
	B4-63	0	6	1.0	1(4.0-GRV)	.57	.10	.67	.15	-	.02	.15	.01	.29	.4
	B0-91	8	14	1.8	8(4.0-GRV)	.38	.10	.46	.14	-	.01	.08	.01	.24	.5
	B1-12	7	12	1.6	1.8(4.0-GRV)	.36	.10	.46	.07	-	.00	.10	.01	.18	.2
	B0-191	19	33	6.3	6.3(4.0-GRV)	.45	.14	.55	.15	-	.00	.08	.01	.22	.3
	B2-147	5	7	1.0	1(4.0-GRV)	.38	.10	.48	.02	-	.08	.10	.01	.14	.3
	B0-31	4	7	1.0	1(4.0-GRV)	.38	.10	.48	.03	-	.00	.04	.01	.08	.4
	B3-20	7	11	1.3	1.3(4.0-GRV)	.38	.10	.48	.03	-	.00	.09	.01	.14	.3
	B10-87	7	12	5.5	3.5(4.0-GRV)	.45	.10	.54	.08	-	.01	.05	.01	.15	.4
New Const.	B5-9	0	9	3.0	3(4.0-GRV)	.45	.10	.53	.15	-	.02	.20	.01	.37	.5
	B6-24	0	5	1.4	1.4(4.0-GRV)	.54	.10	.63	.15	-	.02	.16	.02	.25	.4

**APPENDICES FOR
CHAPTER 15**

APPENDIX 15-1

IMPROVEMENT LENGTH AND COST BY PROVINCES

TABLE 1

Improvement Length and Cost of Project Roads (IRR 7.5% or more)

Name of Province	Group	National Road		Provincial Road		Barangay Road		Total		
		Length(km)	Cost(HP)	Length(km)	Cost(HP)	Length(km)	Cost(HP)	Exist. Road	Improve. Length	Cost(HP)
Abra	GP	6.0	12.3	97.9	98.3	30.8	16.1	2502.9	134.7 (5.4%)	126.6
Benguet	MR	86.5	189.3	168.3	323.2	144.4	73.7	1564.7	399.2 (25.5%)	585.1
Ilocos Norte	GP	12.9	26.5	86.1	86.5	32.4	16.0	2659.2	131.4 (4.9%)	179.9
Ilocos Sur	GP	10.8	22.3	53.7	53.9	31.8	16.6	2429.8	96.3 (4.0%)	92.8
Iloilo	MR	27.2	59.4	132.0	253.6	117.5	59.9	1085.1	276.7 (25.5%)	372.9
Mountain Province	MP	122.0	189.2	58.4	90.3	12.7	11.6	641.5	193.1 (30.1%)	291.0
Pangasinan	MP	226.0	348.8	184.0	284.5	205.5	187.4	4430.3	614.5 (13.9%)	820.8
Batanes	GP	4.0	8.3	13.2	13.2	1.9	1.0	246.5	19.0 (7.7%)	22.5
Cagayan	MP	253.5	392.9	112.8	174.5	142.7	130.1	3139.9	509.0 (16.2%)	697.5
Ifugao	MP	100.1	155.1	33.0	51.1	35.5	32.4	855.1	168.6 (19.7%)	238.6
Isabela	BP	107.8	174.7	434.6	384.2	1416.5	1385.4	3047.6	1958.9 (64.3%)	1944.2
Kalinga-Apayao	BP	142.3	230.5	130.2	115.1	394.0	385.4	1031.1	665.5 (64.6%)	731.0
Nueva Vizcaya	GP	12.4	25.6	75.4	75.7	28.8	13.5	2187.0	113.7 (5.2%)	114.8
Quirino	MP	188.9	292.8	22.0	34.0	16.3	14.0	605.1	226.2 (37.4%)	340.7
Bataan	GP	16.8	34.5	45.9	46.1	8.0	4.2	1001.2	70.7 (7.1%)	84.9
Bulacan	MR	36.6	80.1	195.2	375.1	288.6	147.2	2294.4	520.5 (22.7%)	602.4
Nueva Ecija	MP	184.2	285.5	149.3	230.9	111.0	101.2	2711.9	444.5 (16.4%)	617.7
Pampanga	MR	50.0	109.3	168.5	323.7	253.9	129.5	2085.6	472.4 (22.6%)	562.5
Tarlac	MP	71.1	110.2	118.2	182.8	110.0	100.4	2396.6	299.3 (12.5%)	393.4
Zambales	MR	5.6	12.3	112.8	216.6	98.7	50.3	844.1	217.1 (25.7%)	279.3
Aurora	BP	143.8	233.0	86.8	76.7	148.4	145.1	576.1	379.0 (55.8%)	454.9
Batangas	GP	30.1	62.1	134.8	135.4	35.5	18.6	3376.0	200.5 (5.9%)	216.0
Cavite	MR	73.5	160.8	225.1	432.3	121.7	62.1	1480.1	420.3 (28.4%)	655.2
Leguna	MR	75.4	164.8	132.1	263.8	105.2	53.6	1208.5	312.6 (25.9%)	472.2
Marinduque	MP	159.7	247.6	37.1	57.4	8.7	8.0	531.2	205.6 (38.7%)	312.9
Occidental Mindoro	BP	98.7	159.9	241.0	213.0	488.4	477.7	1266.1	828.1 (65.4%)	850.6
Oriental Mindoro	BP	36.6	59.3	575.1	508.4	149.1	145.9	1065.0	750.8 (71.4%)	712.5
Palawan	BP	90.7	146.9	416.3	368.0	1104.4	1080.1	2489.6	1611.4 (64.7%)	1595.0
Quezon	BP	322.8	522.9	275.9	243.9	493.8	483.0	1662.7	1092.6 (65.7%)	1249.8
Rizal	MP	158.5	245.7	14.3	22.1	48.6	44.3	1055.8	221.4 (21.0%)	312.1
Romblon	GP	17.5	36.1	53.6	53.8	13.0	6.8	1360.6	84.1 (6.2%)	95.7
Albay	MP	256.7	397.9	80.2	124.0	46.1	42.1	1458.7	383.0 (26.3%)	564.0
Camrines Norte	MP	51.0	79.0	28.8	44.6	20.2	18.4	525.4	100.0 (19.0%)	142.0
Camrines Sur	MP	272.2	421.9	150.3	232.6	114.1	104.1	2887.2	536.7 (18.6%)	758.6
Catanduanes	MP	205.2	318.1	47.9	74.0	16.3	14.9	764.2	269.4 (35.3%)	407.0
Masbate	BP	226.3	366.6	88.2	78.0	310.6	303.7	967.2	625.1 (64.6%)	748.3
Sorsogon	MP	170.7	264.5	53.6	82.9	24.2	22.1	869.3	248.5 (28.6%)	369.5
Aklan	MP	104.3	161.7	61.2	94.7	45.2	41.2	1145.9	210.7 (18.4%)	297.6
Antique	MP	152.0	235.6	20.7	32.0	49.4	45.0	1088.6	222.0 (20.4%)	312.8
Capiz	MP	57.3	88.8	78.2	121.0	61.0	55.7	1412.9	196.6 (13.9%)	265.5
Iloilo	MP	492.4	763.2	126.2	195.3	152.3	138.9	3682.7	770.9 (20.9%)	1097.4
Negros Occidental	MP	411.1	637.2	190.7	295.0	163.8	149.4	4055.5	765.6 (18.9%)	1081.6
Bohol	GP	20.0	41.2	188.1	188.9	43.2	22.5	3947.2	251.3 (6.4%)	252.6
Cebu	MP	280.7	435.1	203.3	314.5	121.1	110.4	3256.8	605.1 (18.6%)	860.1
Negros Oriental	BP	37.4	60.6	224.4	198.4	704.2	688.7	1501.6	966.0 (64.3%)	947.7
Siquijor	GP	4.6	9.5	37.7	37.9	1.4	.8	350.8	43.8 (12.5%)	48.1
Leyte	MP	567.4	864.0	119.9	185.5	166.0	153.2	3991.1	845.3 (21.2%)	1202.7
Southern Leyte	MP	152.5	236.4	75.1	116.1	41.7	38.0	1221.4	269.2 (22.0%)	330.5
Eastern Samar	BP	171.8	278.3	187.6	165.9	595.8	582.7	1480.8	955.2 (64.5%)	1026.9
Northern Samar	BP	86.9	108.3	109.9	97.1	256.8	251.1	666.0	433.5 (65.1%)	455.6
Samar	BP	123.4	199.9	101.3	89.5	246.0	240.6	723.0	470.6 (65.1%)	530.0
Basilan	BP	41.1	66.6	171.6	161.7	207.6	203.0	629.2	420.3 (66.8%)	421.3
Sulu	BP	63.0	102.1	162.8	143.9	258.0	252.3	732.7	483.8 (66.0%)	498.3
Tawi-Tawi	BP	61.0	98.9	22.4	19.8	113.6	111.1	307.5	197.0 (64.1%)	229.8
Zamboanga del Norte	MP	192.7	298.6	172.9	267.4	103.8	94.5	2719.2	469.3 (17.3%)	660.7
Zamboanga del Sur	BP	163.7	265.2	557.3	492.6	1612.7	1577.2	3615.5	2333.7 (64.6%)	2335.1
Agusan del Norte	MP	71.1	110.2	49.8	77.1	40.7	37.2	977.0	161.7 (16.5%)	224.4
Agusan del Sur	BP	125.5	203.3	199.9	176.7	634.3	620.4	1489.3	969.7 (64.4%)	1000.4
Bukidnon	MP	342.3	530.6	168.4	260.6	207.5	189.2	4550.0	718.3 (15.8%)	980.4
Camiguin	GP	3.9	8.1	19.3	19.4	3.9	2.0	402.9	27.1 (6.7%)	29.5
Misamis Occidental	GP	12.3	25.4	87.7	88.1	24.9	13.0	2188.9	124.9 (5.7%)	126.4
Misamis Oriental	MP	149.2	231.2	107.3	166.0	133.5	121.8	2825.7	390.0 (13.8%)	519.0
Surigao del Norte	MP	214.8	332.9	77.2	119.4	49.3	45.0	1438.4	341.3 (23.7%)	497.3
Davao del Norte	BP	157.9	255.9	413.3	365.4	1074.0	1050.3	2838.5	1645.2 (58.0%)	1671.6
Davao del Sur	BP	232.2	376.2	318.8	281.9	1571.3	1536.7	3334.1	2122.4 (63.7%)	2194.8
Davao Oriental	BP	207.0	335.4	411.1	363.4	284.6	278.4	1326.8	902.8 (68.0%)	977.2
South Cotabato	MP	104.9	162.6	216.7	335.2	235.4	214.7	4892.6	557.0 (11.4%)	712.5
Surigao del Sur	BP	216.1	350.1	208.7	184.5	495.0	484.1	1412.4	919.8 (65.1%)	1018.7
Lenao del Norte	GP	11.2	23.1	85.0	85.3	56.5	29.5	1134.0	152.7 (13.5%)	137.9
Lenao del Sur	BP	112.9	183.0	256.6	226.3	698.1	682.7	1648.8	1067.0 (64.7%)	1092.0
Maguindano	BP	109.5	177.3	335.4	296.5	483.7	473.1	1400.9	928.6 (66.3%)	946.9
North Cotabato	BP	36.1	58.4	150.8	133.3	553.4	541.3	1156.1	740.3 (64.0%)	733.0
Sultan Kudarat	BP	27.9	45.2	346.0	305.8	647.9	633.6	1557.9	1021.8 (65.6%)	984.7
Total		9341.2	15006.6	11295.2	13106.5	18865.2	17616.4	135107.2	39501.6 (29.2%)	45729.5

TABLE 2

Improvement Length and Cost of Project Roads (IRR 7.5% to 15.0%)

Name of Province	Group	National Road		Provincial Road		Barangay Road		Total		
		Length(km)	Cost(MP)	Length(km)	Cost(MP)	Length(km)	Cost(MP)	Exist. Road	Improve. Length	Cost(MP)
Abra	GP	4.9	10.1	49.4	49.6	13.5	7.0	2502.9	67.8 (2.7%)	66.7
Benguet	MR	7.5	16.4	36.9	70.9	69.1	35.2	1564.7	113.5 (7.3%)	122.6
Ilocos Norte	GP	10.5	21.7	41.5	41.7	14.2	7.4	2669.2	68.2 (2.6%)	72.0
Ilocos Sur	GP	8.9	18.3	27.1	27.2	13.9	7.3	2429.8	49.9 (2.1%)	52.7
Ia Union	MR	2.4	5.2	29.0	55.6	56.2	28.7	1085.1	87.6 (8.1%)	89.5
Mountain Province	MP	82.4	127.7	18.0	27.9	10.5	9.5	641.5	110.8 (17.3%)	165.1
Pangasinan	MP	151.9	238.4	56.7	87.8	169.6	164.7	4430.3	378.2 (8.5%)	477.9
Balabes	GP	3.3	6.8	6.7	6.7	4	4	246.6	10.8 (4.4%)	13.9
Cagayan	MP	171.1	265.2	34.8	53.8	117.8	107.4	3139.9	323.6 (10.3%)	426.4
Ifugao	MP	67.6	104.7	10.2	15.8	29.3	26.7	855.1	107.0 (12.5%)	147.2
Isabela	BP	59.2	96.0	153.8	135.9	631.1	617.2	3047.6	844.1 (27.7%)	849.1
Kalinga-Apayao	DP	78.2	126.7	46.1	40.7	176.6	171.7	1031.1	299.8 (29.1%)	339.1
Nueva Vizcaya	GP	10.2	21.0	38.1	38.2	11.3	5.9	2187.0	59.6 (2.7%)	65.1
Quirino	MP	127.5	197.6	5.8	10.5	12.7	11.5	605.1	146.9 (24.3%)	219.6
Bataan	GP	13.7	28.3	23.2	23.3	3.5	1.8	1001.2	40.4 (4.0%)	53.4
Bulacan	MR	3.2	7.0	42.8	82.3	138.1	70.4	2294.4	184.1 (8.0%)	159.7
Nueva Ecija	MP	124.3	192.7	46.0	71.2	91.6	83.5	2711.9	262.0 (9.7%)	347.5
Pampanga	MR	4.3	9.5	37.0	71.0	121.5	62.0	2085.6	162.8 (7.8%)	142.5
Tarlac	MP	48.0	74.4	38.5	56.4	90.8	82.5	2395.6	175.3 (7.3%)	213.5
Zambales	MR	5	1.1	24.7	47.5	47.2	24.1	844.1	72.5 (8.6%)	72.7
Aurora	BP	79.0	128.0	30.7	27.2	56.1	64.7	576.1	175.9 (30.5%)	219.8
Batangas	GP	24.7	50.9	68.1	68.4	15.5	8.1	3376.0	108.3 (3.2%)	127.4
Cavite	MR	6.4	14.0	49.4	94.9	58.2	29.7	1480.1	114.0 (7.7%)	138.5
Laguna	MR	6.5	14.3	29.0	55.7	50.3	25.7	1208.6	85.8 (7.1%)	95.7
Marinduque	MP	107.8	167.1	11.4	17.7	7.2	6.6	531.2	126.5 (23.8%)	191.4
Occidental Mindoro	BP	54.2	87.8	85.3	75.4	217.6	212.8	1265.1	357.1 (28.2%)	376.0
Oriental Mindoro	BP	20.1	32.6	203.5	179.9	66.4	85.0	1065.0	290.0 (27.2%)	277.4
Palawan	BP	49.8	80.7	147.3	130.2	492.0	481.2	2489.6	689.2 (27.7%)	692.1
Quezon	BP	177.4	287.3	97.6	86.3	220.0	215.2	1862.7	495.0 (26.8%)	588.8
Rizal	MP	107.0	165.8	4.4	6.8	40.1	36.6	1055.8	151.5 (14.3%)	209.2
Ronblon	GP	14.4	29.6	27.1	27.2	5.7	3.0	1360.6	47.1 (3.5%)	59.7
Albay	MP	173.2	265.5	24.2	38.3	38.1	34.7	1458.7	236.0 (16.2%)	341.5
Camarines Norte	MP	34.4	53.3	8.9	13.8	16.7	15.2	525.4	60.0 (11.4%)	82.3
Camarines Sur	MP	183.7	284.8	46.4	71.7	94.2	85.9	2887.2	324.3 (11.2%)	442.4
Catanduanes	MP	138.5	214.7	14.8	22.8	13.5	12.3	764.2	165.7 (21.8%)	248.8
Masbate	BP	124.3	201.4	31.2	27.6	138.4	135.3	967.2	293.9 (30.4%)	364.3
Sorsogon	MP	115.2	178.5	16.5	25.6	20.0	18.2	869.3	151.7 (17.5%)	222.3
Aklan	MP	70.4	109.1	18.9	29.2	37.3	34.0	1145.9	126.6 (11.0%)	172.3
Antique	MP	102.6	159.0	6.4	9.9	40.7	37.2	1088.6	149.7 (13.8%)	206.0
Capiz	MP	38.7	59.9	24.1	37.3	50.4	45.9	1412.9	113.2 (8.0%)	143.2
Iloilo	MP	332.3	515.1	38.9	60.2	125.7	114.6	3682.7	496.9 (13.5%)	689.9
Negros Occidental	MP	277.4	430.0	58.8	91.0	135.2	123.3	4055.5	471.5 (11.6%)	644.3
Bohol	GP	16.4	33.8	95.0	95.4	18.9	9.9	3947.2	100.3 (2.5%)	139.0
Cebu	MP	189.5	293.7	62.7	97.0	99.9	91.1	3256.8	352.1 (10.8%)	481.8
Negros Oriental	BP	20.5	33.3	79.4	70.2	313.8	306.9	1501.6	413.7 (27.5%)	410.3
Siquijor	GP	3.8	7.8	19.0	19.1	6	3	350.8	23.5 (6.7%)	27.3
Leyte	MP	376.2	583.1	37.0	57.2	136.6	126.4	3991.1	551.8 (13.8%)	766.7
Southern Leyte	MP	102.9	159.5	23.2	35.8	34.4	31.4	1221.4	160.5 (13.1%)	226.7
Eastern Samar	BP	94.4	152.9	66.4	58.7	265.5	259.6	1480.8	426.2 (28.8%)	471.2
Northern Samar	BP	36.7	59.5	38.9	34.4	114.4	111.9	665.0	190.0 (28.5%)	205.8
Samar	BP	67.8	109.8	35.8	31.7	109.6	107.2	723.0	213.2 (29.5%)	248.7
Basilan	BP	22.6	36.6	60.7	53.7	92.5	90.4	629.2	175.8 (27.9%)	180.7
Sulu	BP	34.6	56.1	57.6	50.9	114.9	112.4	732.7	207.1 (28.3%)	219.4
Tawi-Tawi	BP	33.5	54.3	7.9	7.0	50.6	49.5	307.5	92.1 (29.9%)	110.8
Zamboanga del Norte	MP	130.0	201.6	53.3	82.5	85.6	78.1	2719.2	269.0 (9.9%)	362.1
Zamboanga del Sur	BP	90.0	145.7	197.2	174.3	718.5	702.7	3615.5	1005.6 (27.8%)	1022.7
Agusan del Norte	MP	48.0	74.4	15.4	23.8	33.6	30.7	977.0	97.0 (9.9%)	128.8
Agusan del Sur	DP	69.0	111.7	70.7	82.5	282.6	276.4	1489.3	422.3 (28.4%)	450.6
Bukidnon	MP	231.0	358.1	51.9	80.4	171.3	156.2	4550.0	464.2 (10.3%)	594.7
Camiguin	GP	3.2	6.6	9.7	9.8	1.7	9	402.9	14.7 (3.6%)	17.3
Hisanis Occidental	GP	10.1	20.8	44.3	44.5	10.9	5.7	2188.9	65.3 (3.0%)	70.9
Hisanis Oriental	MP	100.7	156.0	33.1	51.2	110.2	100.5	2825.7	244.0 (8.6%)	307.8
Surigao del Norte	MP	144.9	224.7	23.8	36.8	40.7	37.1	1438.4	209.5 (14.6%)	298.5
Davao del Norte	BP	86.8	140.6	146.2	129.3	478.5	468.0	2538.5	711.5 (28.0%)	737.8
Davao del Sur	BP	127.6	206.7	112.8	99.7	700.0	684.6	3334.1	940.5 (28.2%)	991.1
Davao Oriental	BP	113.8	184.3	145.5	128.6	126.8	124.0	1326.8	386.0 (29.1%)	436.9
South Cotabato	MP	70.8	109.7	66.8	103.4	194.3	177.2	4892.6	331.9 (6.8%)	390.3
Surigao del Sur	BP	118.7	192.3	73.8	65.3	220.5	215.7	1412.4	413.1 (29.2%)	473.3
Lanao del Norte	GP	9.2	18.9	42.9	43.1	24.7	12.9	4134.0	76.8 (1.9%)	74.9
Lanao del Sur	BP	62.1	100.5	90.6	80.1	311.0	304.2	1648.8	463.7 (28.1%)	484.8
Haguldanaw	BP	60.1	97.4	118.7	104.9	215.5	210.8	1400.9	394.3 (28.1%)	413.1
North Cotabato	BP	19.8	32.1	63.3	47.2	246.6	241.1	1156.1	319.7 (27.7%)	320.4
Sultan Kudarat	BP	15.3	24.9	122.4	108.2	288.7	282.3	1557.9	426.4 (27.4%)	415.4
Total		5727.5	9085.4	3866.6	4299.3	9383.3	8726.8	135107.2	18977.4 (14.0%)	22111.5

TABLE 3

Improvement Length and Cost of Project Roads (IRR 15.0X or more)

Name of Province	Group	National Road		Provincial Road		Barangay Road		T o t a l		
		Length(km)	Cost(NP)	Length(km)	Cost(NP)	Length(km)	Cost(NP)	Exisl. Road	Improve Length	Cost(NP)
Abra	GP	1.1	2.2	48.5	48.7	17.3	9.0	2502.9	66.9 (2.7X)	59.9
Benguet	NR	79.0	172.8	131.3	252.3	75.3	38.4	1564.7	286.7 (18.3X)	463.5
Ilocos Norte	GP	2.3	4.8	42.6	42.8	18.2	9.5	2659.2	63.2 (2.4X)	57.1
Ilocos Sur	GP	1.9	4.0	26.6	26.7	17.9	9.3	2429.8	46.4 (1.9X)	40.0
La Union	NR	24.8	54.3	103.0	197.0	61.3	31.3	1085.1	189.1 (17.4X)	283.4
Mountain Province	NP	39.7	61.5	40.4	62.5	2.2	2.0	641.5	82.3 (12.8X)	126.0
Pangasinan	NP	73.2	113.4	127.2	196.8	35.9	32.7	4430.2	236.3 (5.3X)	348.0
Batanes	GP	.7	1.5	6.5	6.6	1.0	.5	246.6	8.3 (3.4X)	8.6
Cagayan	NP	82.4	127.7	78.0	120.7	24.9	22.7	3139.9	185.3 (5.9X)	271.1
Ifugao	NP	32.5	50.4	22.9	35.4	6.2	5.7	855.1	51.6 (7.2X)	91.4
Isabela	BP	48.6	78.7	280.8	248.2	785.4	788.1	3047.6	1114.8 (36.6X)	1095.1
Kalinga-Apayao	BP	64.1	103.9	84.1	74.4	218.5	213.7	1031.1	366.7 (35.6X)	391.9
Nueva Vizcaya	GP	2.2	4.6	37.3	37.5	14.5	7.6	2187.0	54.1 (2.5X)	49.7
Quirino	NP	61.4	95.2	15.2	23.5	2.7	2.4	605.1	79.3 (13.1X)	121.1
Bataan	GP	3.0	6.2	22.7	22.8	4.5	2.4	1001.2	30.3 (3.0X)	31.4
Bulacan	NR	33.5	73.2	152.4	292.7	150.5	76.7	2294.4	336.3 (14.7X)	442.7
Nueva Ecija	NP	59.9	92.8	103.2	159.7	19.4	17.7	2711.9	182.5 (6.7X)	270.2
Pampanga	NR	45.7	99.9	131.5	252.7	132.4	67.5	2086.6	309.6 (14.8X)	420.0
Tarlac	NP	23.1	35.8	81.7	126.5	19.2	17.5	2396.8	124.1 (5.2X)	179.8
Zambales	NR	5.1	11.3	88.0	169.1	51.5	26.3	844.1	144.6 (17.1X)	206.6
Aurora	BP	64.8	106.0	56.1	49.6	32.3	80.5	576.1	203.2 (35.3X)	235.0
Batangas	GP	5.4	11.2	66.8	67.0	20.0	10.4	3376.0	92.2 (2.7X)	88.7
Cavite	NR	67.2	146.9	175.7	337.5	63.5	32.4	1480.1	306.3 (20.7X)	515.7
Laguna	NR	68.8	150.5	103.1	198.1	54.8	28.0	1208.6	226.8 (18.8X)	376.5
Marinduque	NP	51.9	80.5	25.6	39.7	1.5	1.4	531.2	79.1 (14.9X)	121.6
Occidental Mindoro	BP	44.5	72.0	155.7	137.6	270.8	264.9	1266.1	471.0 (37.2X)	474.5
Oriental Mindoro	BP	16.5	26.7	371.6	328.5	82.7	80.9	1056.0	470.8 (44.2X)	436.1
Palawan	BP	40.8	66.2	269.0	237.8	612.4	598.9	2489.5	922.2 (37.0X)	902.9
Quezon	BP	145.4	235.6	178.3	157.6	273.8	267.8	1662.7	597.6 (35.9X)	661.0
Rizal	NP	51.5	79.9	9.9	15.3	8.5	7.7	1055.8	69.9 (6.6X)	102.9
Romblon	GP	3.2	6.5	26.5	26.6	7.3	3.8	1360.6	37.0 (2.7X)	37.0
Albay	NP	83.4	129.3	55.5	85.8	8.1	7.3	1458.7	147.0 (10.1X)	222.5
Camarines Norte	NP	16.6	25.7	20.0	30.9	3.5	3.2	525.4	40.0 (7.6X)	59.8
Camarines Sur	NP	88.5	137.2	104.0	160.8	19.9	18.2	2887.2	212.4 (7.4X)	316.2
Catanduanes	NP	66.7	103.4	33.1	51.2	2.9	2.6	764.2	102.7 (13.4X)	157.2
Hasbata	BP	101.9	155.1	57.0	50.4	172.2	168.4	967.2	331.2 (34.2X)	384.0
Sorsogon	NP	55.5	86.0	37.1	57.3	4.2	3.9	869.3	96.8 (11.1X)	147.2
Aklan	NP	33.9	52.6	42.3	65.5	7.9	7.2	1145.9	84.1 (7.3X)	125.3
Antique	NP	49.4	76.6	14.3	22.1	8.6	7.9	1088.6	72.3 (6.6X)	105.6
Copiz	NP	18.5	28.9	54.1	83.7	10.7	9.7	1412.9	83.4 (5.9X)	122.3
Iloilo	NP	150.1	248.1	87.3	135.1	26.6	24.3	3682.7	274.0 (7.3X)	407.4
Negros Occidental	NP	133.6	207.1	131.9	204.0	78.6	26.1	4055.5	294.1 (7.3X)	437.3
Bohol	GP	3.6	7.4	93.1	93.5	24.3	12.7	3947.3	121.0 (3.1X)	113.5
Cebu	NP	91.3	141.5	140.6	217.5	21.1	19.3	3256.8	253.0 (7.8X)	378.3
Negros Oriental	BP	16.8	27.3	146.0	128.2	390.5	381.9	1501.6	552.3 (36.8X)	537.4
Siquijor	GP	.8	1.7	18.7	18.7	.8	.4	350.8	20.3 (5.8X)	20.9
Leyte	NP	181.2	280.9	82.9	128.3	29.3	26.7	3991.1	293.5 (7.4X)	436.9
Southern Leyte	NP	49.6	76.8	51.9	80.3	7.3	6.6	1221.4	108.8 (8.9X)	183.8
Eastern Samar	BP	77.4	125.4	121.2	107.2	330.4	323.1	1480.8	529.0 (35.7X)	555.7
Northern Samar	BP	30.1	48.8	71.0	62.8	142.4	139.2	666.0	243.5 (36.6X)	250.8
Samar	BP	55.6	90.1	65.4	57.8	136.4	133.4	666.0	243.5 (36.6X)	281.3
Basilan	BP	18.5	30.0	110.9	98.0	115.1	112.6	629.2	244.5 (38.9X)	240.6
Sulu	BP	28.4	46.0	105.2	93.0	143.0	139.9	732.7	276.6 (37.8X)	278.9
Tawi-Tawi	BP	27.5	44.5	14.5	12.8	63.0	61.6	307.5	105.0 (34.1X)	118.9
Zamboanga del Norte	NP	62.6	97.1	119.6	185.0	18.1	16.5	2719.2	200.3 (7.4X)	298.6
Zamboanga del Sur	BP	73.8	119.5	360.1	318.3	894.2	874.5	3616.5	1328.1 (36.7X)	1312.4
Agusan del Norte	NP	23.1	35.8	34.5	53.3	7.1	6.5	977.0	64.7 (6.6X)	95.6
Agusan del Sur	BP	56.5	91.6	129.2	114.2	351.7	344.0	1489.3	537.4 (36.1X)	549.8
Bukidnon	NP	111.3	172.5	116.5	180.2	36.2	33.0	4550.0	264.0 (5.8X)	386.8
Camiguin	GP	.7	1.5	9.5	9.6	2.2	1.1	402.9	12.4 (3.1X)	12.2
Misamis Occidental	GP	2.2	4.6	43.4	43.6	14.0	7.3	2188.9	59.7 (2.7X)	55.5
Misamis Oriental	NP	48.5	75.2	74.2	114.8	23.3	21.3	2825.7	146.0 (5.2X)	211.2
Surigao del Norte	NP	69.8	108.2	53.4	82.6	8.6	7.9	1438.4	131.8 (9.2X)	198.7
Davao del Norte	BP	71.2	115.3	287.1	236.1	595.5	582.4	2538.5	933.7 (36.8X)	933.8
Davao del Sur	BP	104.6	169.5	206.0	182.1	871.2	852.1	3334.1	1181.9 (35.4X)	1203.7
Davao Oriental	BP	93.3	151.1	265.7	234.9	157.8	154.3	1326.8	516.8 (38.9X)	540.3
South Cotabato	NP	34.1	52.9	149.9	231.8	41.1	37.5	4892.6	225.1 (4.6X)	322.2
Surigao del Sur	BP	97.4	157.7	134.8	119.2	274.5	268.4	1412.4	506.7 (35.9X)	545.3
Lanao del Norte	GP	2.0	4.2	42.1	42.2	31.8	16.6	4134.0	75.9 (1.9X)	63.0
Lanao del Sur	BP	50.9	82.4	165.4	146.2	387.1	378.6	1648.8	603.4 (36.6X)	607.2
Maguindano	BP	49.3	78.9	216.7	191.6	268.2	262.3	1400.9	534.2 (38.1X)	533.8
North Cotabato	BP	16.3	26.3	97.4	86.1	306.9	300.1	1156.1	420.5 (36.4X)	412.6
Sultan Kudarat	BP	12.6	20.4	223.6	107.6	359.2	351.3	1557.9	595.4 (38.2X)	569.3
Total		3613.7	5921.1	7428.6	8807.2	9481.9	8889.6	135107.2	20524.2 (15.2X)	23618.0

**APPENDICES FOR
CHAPTER 16**

APPENDIX 16-1

ORGANIZATION CHART

FIGURE 1 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
ORGANIZATIONAL CHART

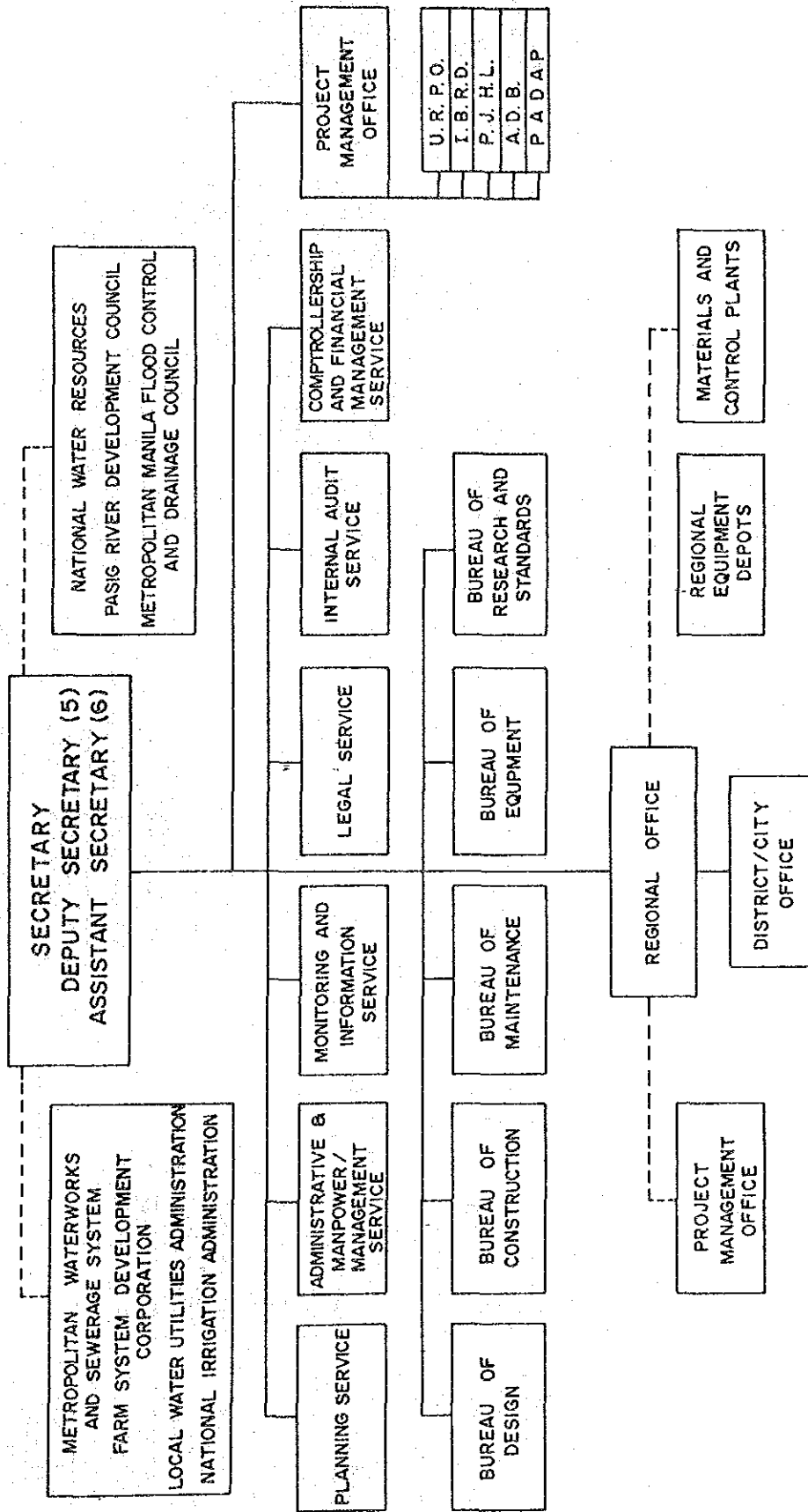


FIGURE 2 OFFICE OF THE REGIONAL DIRECTOR ORGANIZATIONAL CHART

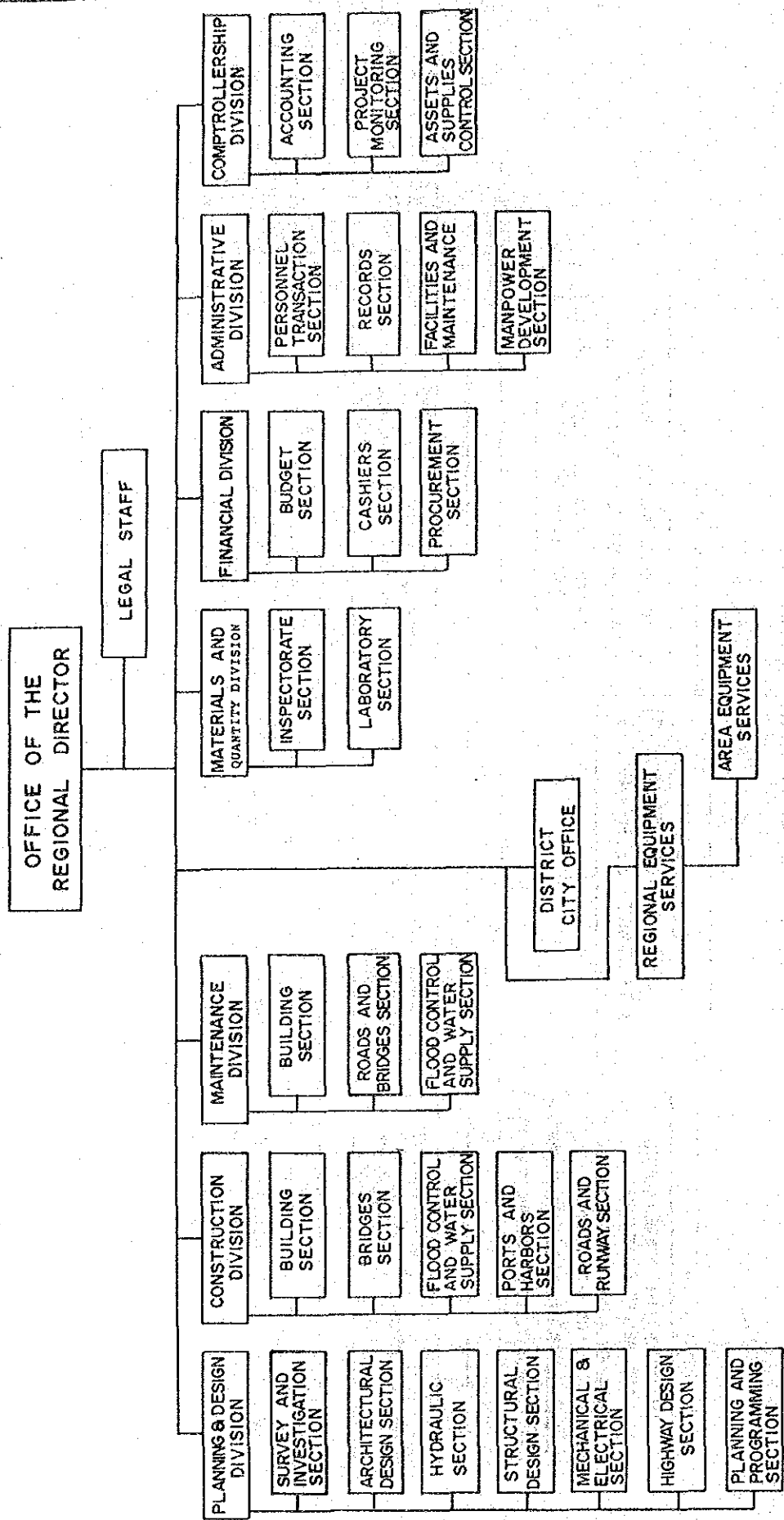


FIGURE 3 OFFICE OF DISTRICT ENGINEER ORGANIZATIONAL CHART

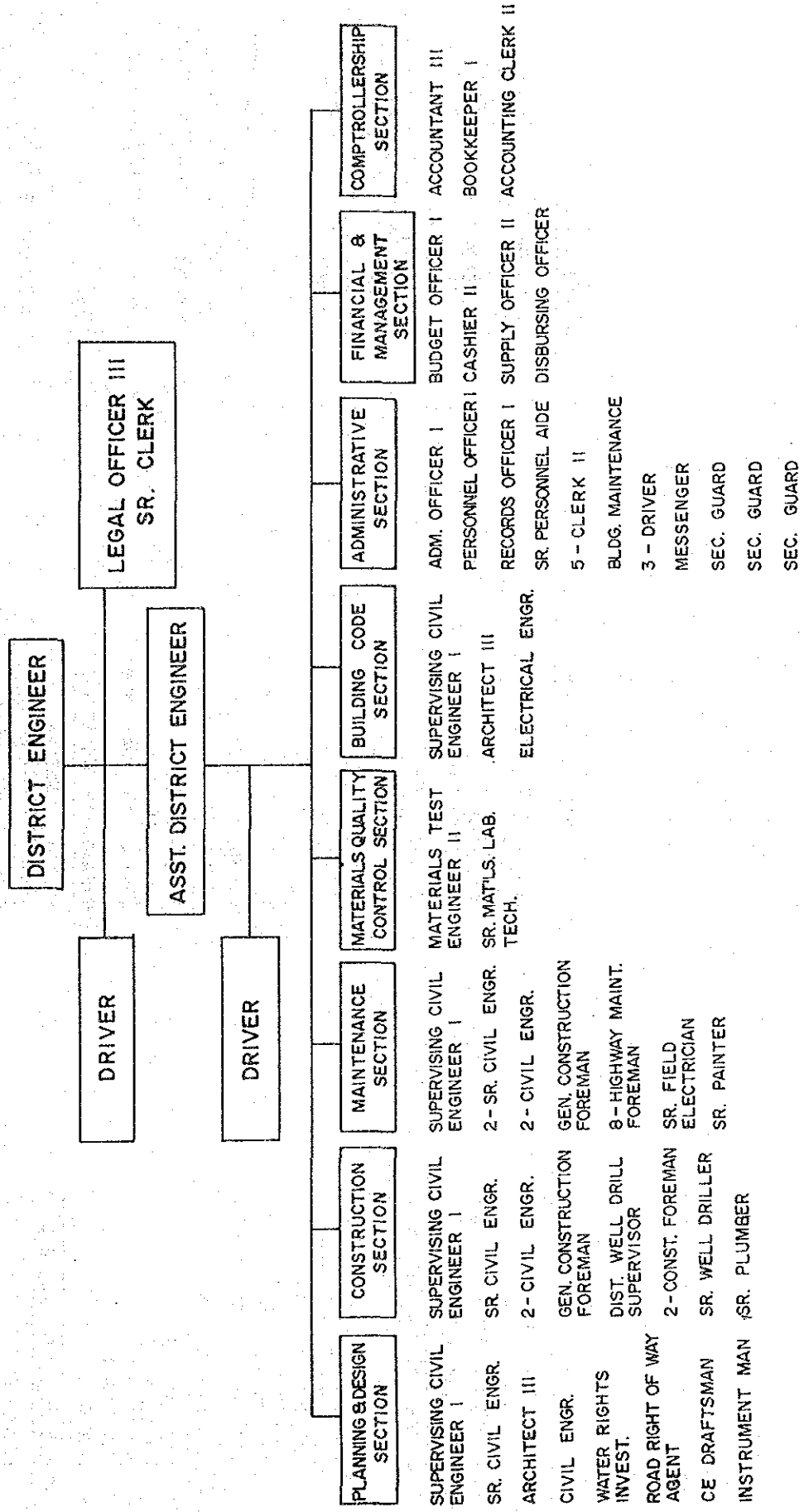


FIGURE 4 OFFICE OF THE CITY ENGINEER
ORGANIZATIONAL CHART

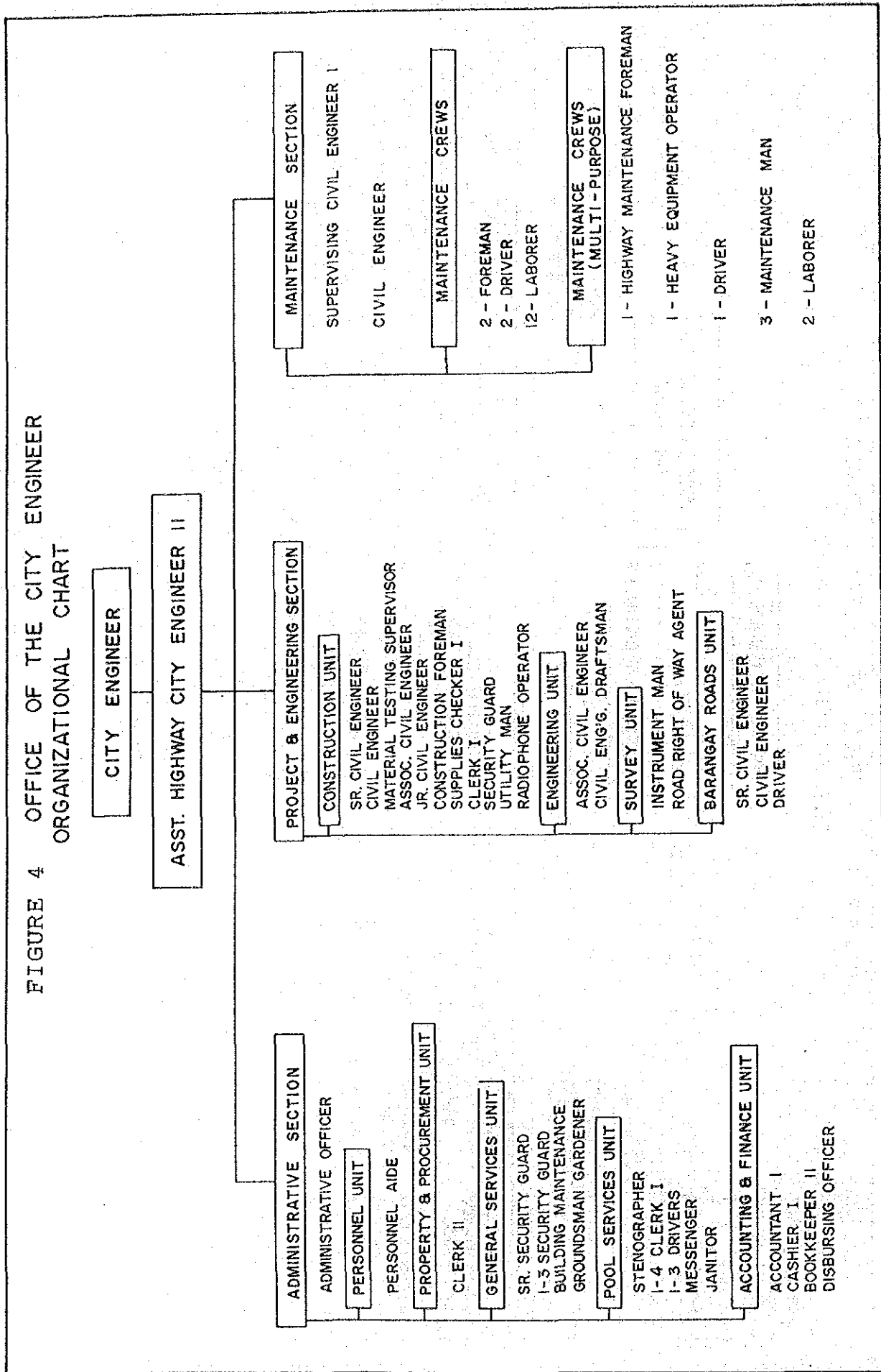
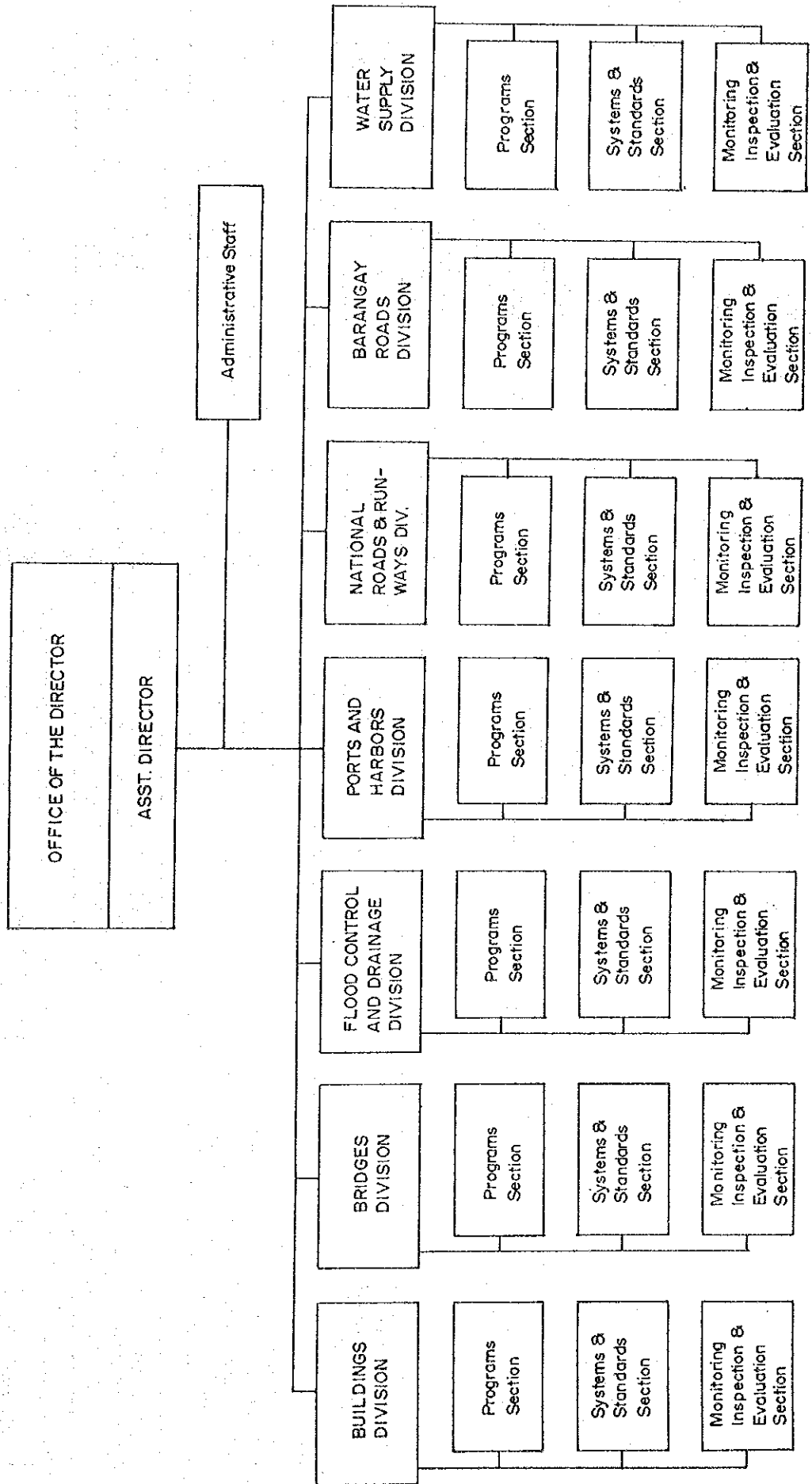


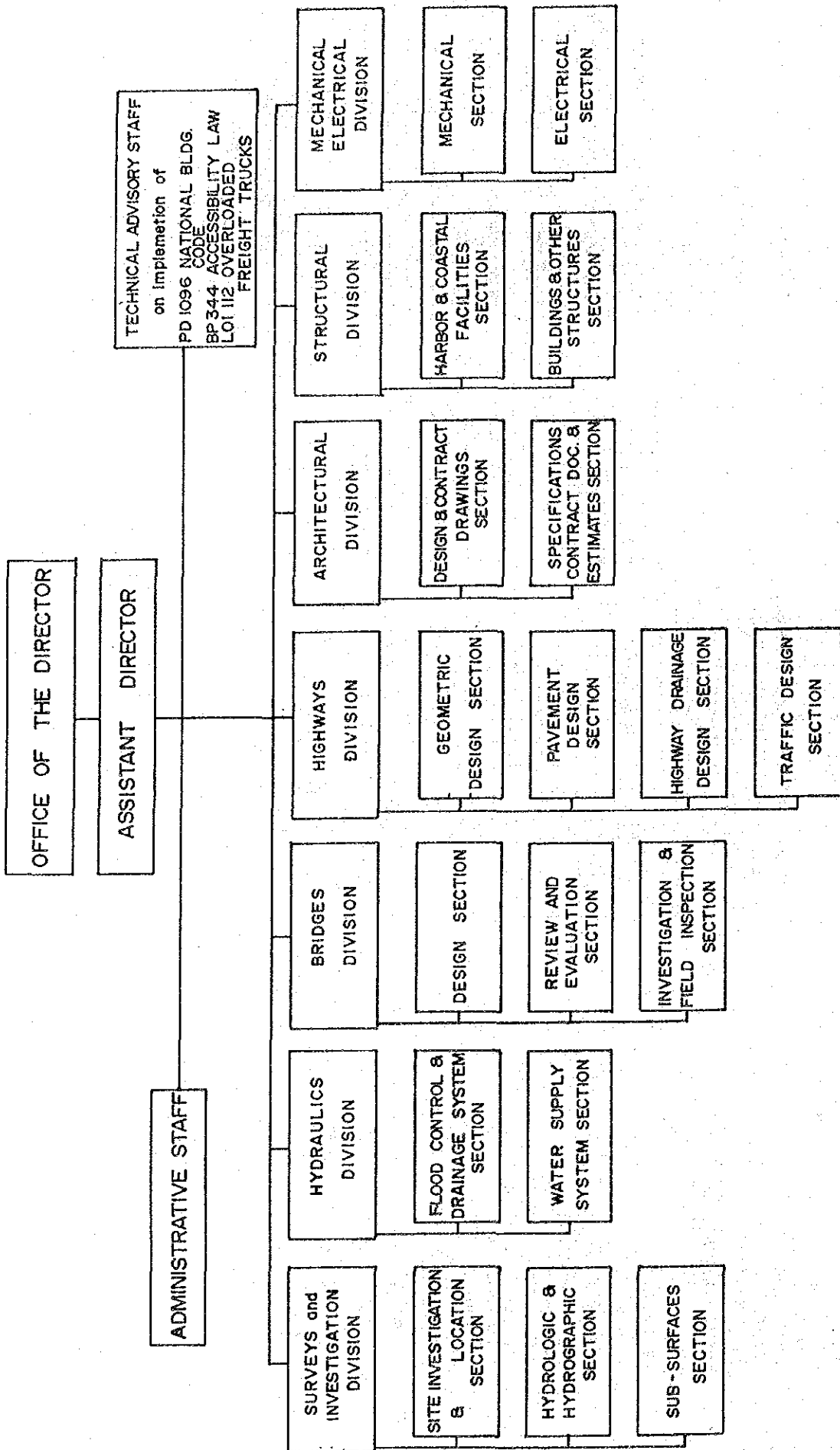
FIGURE 5

Department of Public Works and Highways
BUREAU OF CONSTRUCTION
 Organization Chart



Department of Public Works and Highways
 BUREAU OF DESIGN
 ORGANIZATION CHART

FIGURE 6



APPENDIX 16-2

STANDARD WORKS OF SECTIONS, ORGANIZATION AND
MANPOWER OF DISTRICT/CITY ENGINEER OFFICE

DISTRICT ENGINEERS

STANDARD WORKS OF SECTIONS

1. PLANNING AND DESIGN SECTION

- Undertakes project identification, project studies and analysis for project development.
- Conduct surveys and investigation.
- Prepares plans, specification and program of work.
- Undertakes highways design, architectural plans and structural design.
- Negotiates road right-of-way acquisition.

1.1 Survey, Investigation and Highway Design Unit

- Undertakes feasibility studies, identification and evaluate project for development.
- Conducts surveys and investigation.
- Prepares plan and specification and undertakers highway design.
- Negotiates road right-of-way acquisition.
- Processes vehicles temporary permit.

1.2 Architectural and Structural Design Unit

- Prepares, evaluates proposed architectural building plans and land development layout as well as structural design.
- Prepares program of work and specification, blue prints and drafts various plans.

1.3 Planning and Programming Unit

- Undertakes preparation of various program of work.
- Identifies and evaluates school building projects, and prepares various reports of the section.

2. CONSTRUCTION SECTION

- Directs and coordinates all construction activities of the District.
- Revise programs of work, cost estimates, tender and contract documents.
- Process progress building.
- Monitors and evaluates implementation of projects.

2.1 National Buildings, Ports Unit

- Undertakes, supervises, inspects all construction works pertinent to buildings and portwork projects.

2.2 Road, Bridges, Runways Unit

- Undertakes, supervises and inspects all construction works pertinent to roads, bridges and runways projects.

2.3 Project Monitoring Unit

- Verifies actual accomplishment in projects, compares work accomplished with reports submitted.
- Gathers data for monthly report for submittal to Regional Office.

2.4 Flood Control and Water Works Supply Unit

- Undertakes, supervises and inspects all construction works pertinent to flood control and water supply projects. Prepares program of work and estimates on water supply projects.

3. MAINTENANCE SECTION

- Undertakes repair and maintenance of national buildings, school buildings, hospitals, rural health units, public markets, national and barangay roads and bridges, revetments, seawalls, fishing ports, lighthouses, drainage systems, river controls and waterworks and submission of reports.

3.1 Roads and Bridges Unit

- Undertakes repair and maintenance of all national and barangay roads and bridges and submission of required reports.

3.2 Building Unit

- Undertakes repair and maintenance of all national buildings, school buildings hospitals, rural health units, public markets and submission of required reports.

3.3 Flood Control and Water Supply Unit

- Undertakes repair and maintenance of hydraulic structures like revetments, seawalls, fishing ports, drainage system.
- Undertakes repair and maintenance of waterworks under levels I, II and III, artesian wells, spring development and submission of required reports.

4. MATERIALS QUALITY CONTROL SECTION

- Undertakes inspection and testing of all materials for use in roads and bridges, buildings and other public works projects.
- Undertakes physical and chemical analysis of water from all public water supply systems.
- Undertakes inspection and reports violation to Memo Circular of Bureau of Mines.

4.1 Inspectorate and Laboratory Unit

Handles the inspection of all materials used on projects as to whether it passed required specifications and quality control.

5. BUILDING CODE SECTION

- Implements and enforces the rules and regulations of the National Building Code of the Philippines (P.D. 1096) within the Province of Agusan del Norte.

5.1 Processing Unit

- Processes building sanitary and electrical permit applications before submitting to the District Engineer for approval.

5.2 Enforcement Unit

- Inspects construction repair, additional or renovations of building in accordance with the approved plans.
- Reports to the Chief of Section all violations for appropriate action.

6. ADMINISTRATIVE SECTION

- Directs and coordinates all administrative, personnel records and general services activities of the district.
- Attends to personnel welfare and personnel development.

6.1 Personnel and Manpower Development Unit

- Prepares and processes papers on personnel transactions such as appointments, promotion, recruitment, leave credits and balances, updates service records.
- Prepares program for personnel development; conducts seminars; conducts physical fitness activities.

6.2 Records Unit

- Maintains and keeps office files.
- Receives and dispatches mail.
- Certifies to authenticity of records.
- Prepares records inventory, retention and disposal schedules.
- Segregates records for transfer to storage area.

6.3 Facilities, Maintenance Unit

- Provides clerical and janitorial service.
- Provides transportation services.
- Provides safeguarding services.
- Maintenance of communication facilities thru SSB radio.

7. FINANCE AND MANAGEMENT SECTION

- Directs and coordinates budgetary, financial and management matters of the District.

7.1 Cashiering Unit

- Disburses project funds and provides cashiering services.

7.2 Property Procurement Unit

- Procures construction materials and office supplies.
- Provides custodial services.

8. COMPTROLLERSHIP SECTION

- Directs and coordinates accounting activities, management evaluation and information project monitoring and supplies control.

8.1 Accounting Unit

- Controls project funds and certifies to its availability.
- Maintains books of accounts and prepares financial statement and reports.
- Reviews and verifies vouchers as to accuracy of computation and completeness of documents.

8.2 Assets and Supplies Control Unit

- Makes efficient control of supplies.

8.3 Internal Control Unit

- Verifies vouchers and payrolls as to accuracy of computation, completeness of supporting papers reasonableness of prices of supplies and materials.

ORGANIZATION CHART
MINISTRY OF PUBLIC WORKS AND HIGHWAYS
DISTRICT ENGINEERING OFFICE
AGUSAN DEL NORTE

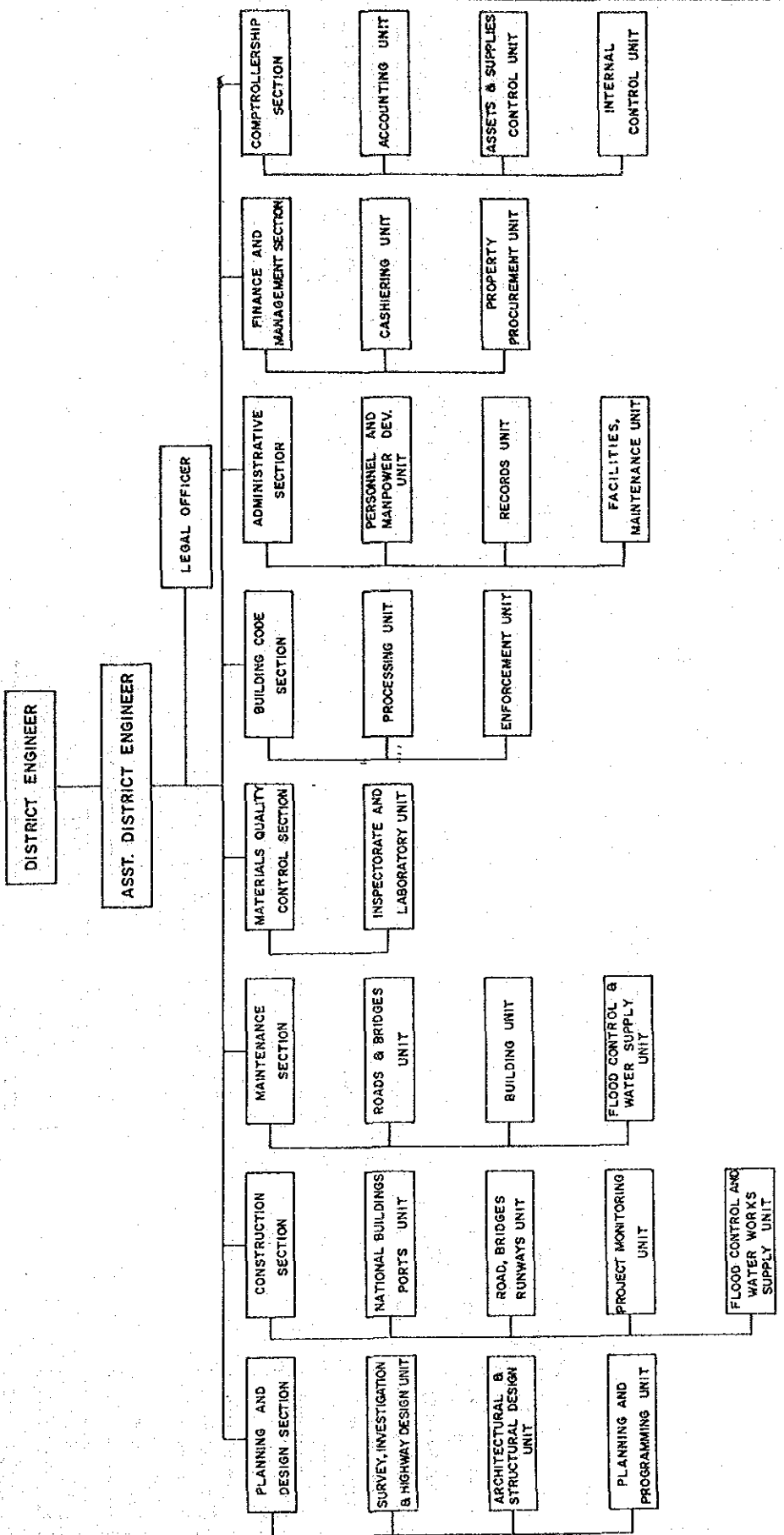


FIGURE 1

ORGANIZATIONAL DIAGRAM OF CAVITE ENGINEERING DISTRICT

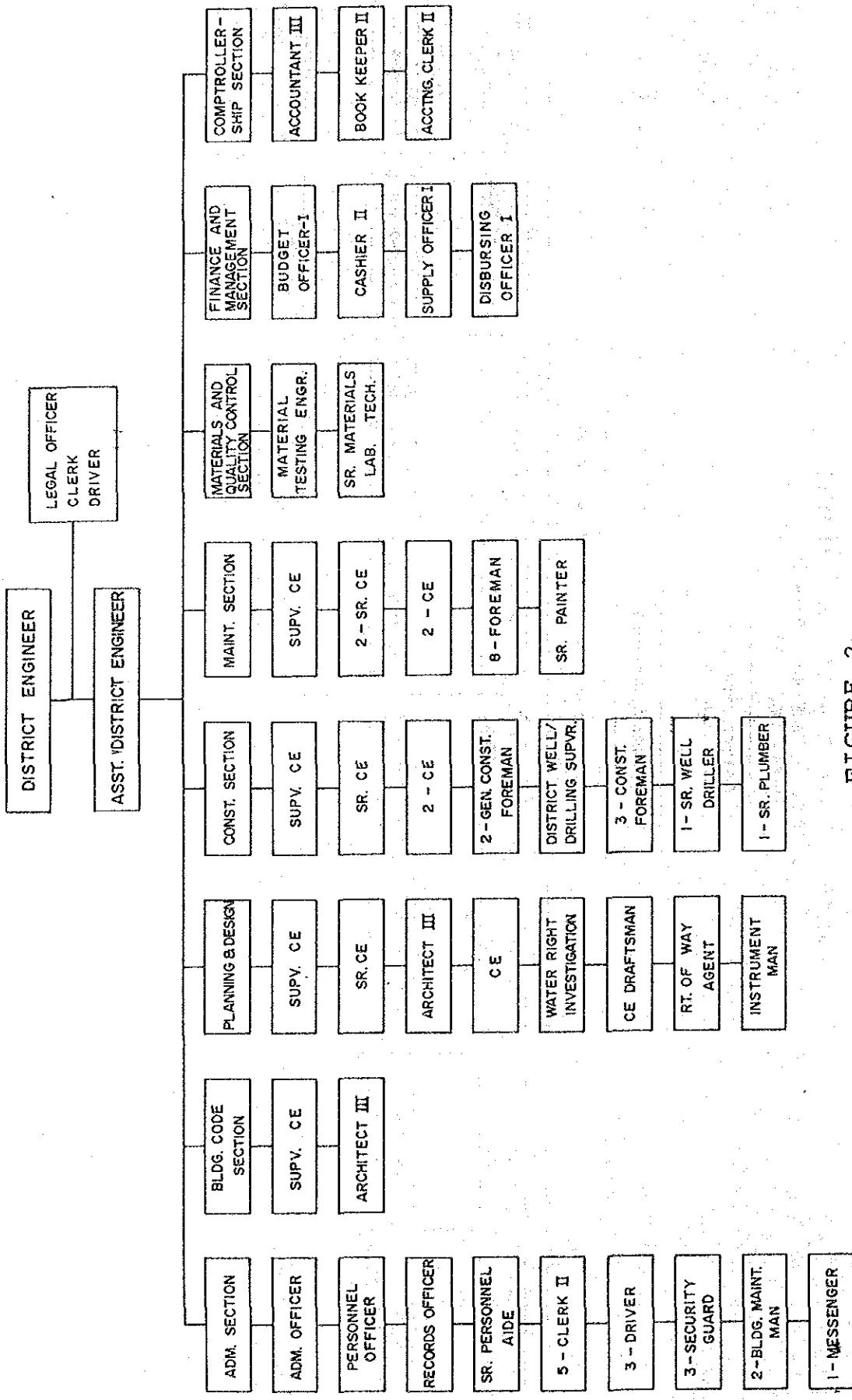


FIGURE 2

TABLE OF ORGANIZATION

CITY ENGINEERING OFFICE
TAGAYTAY CITY

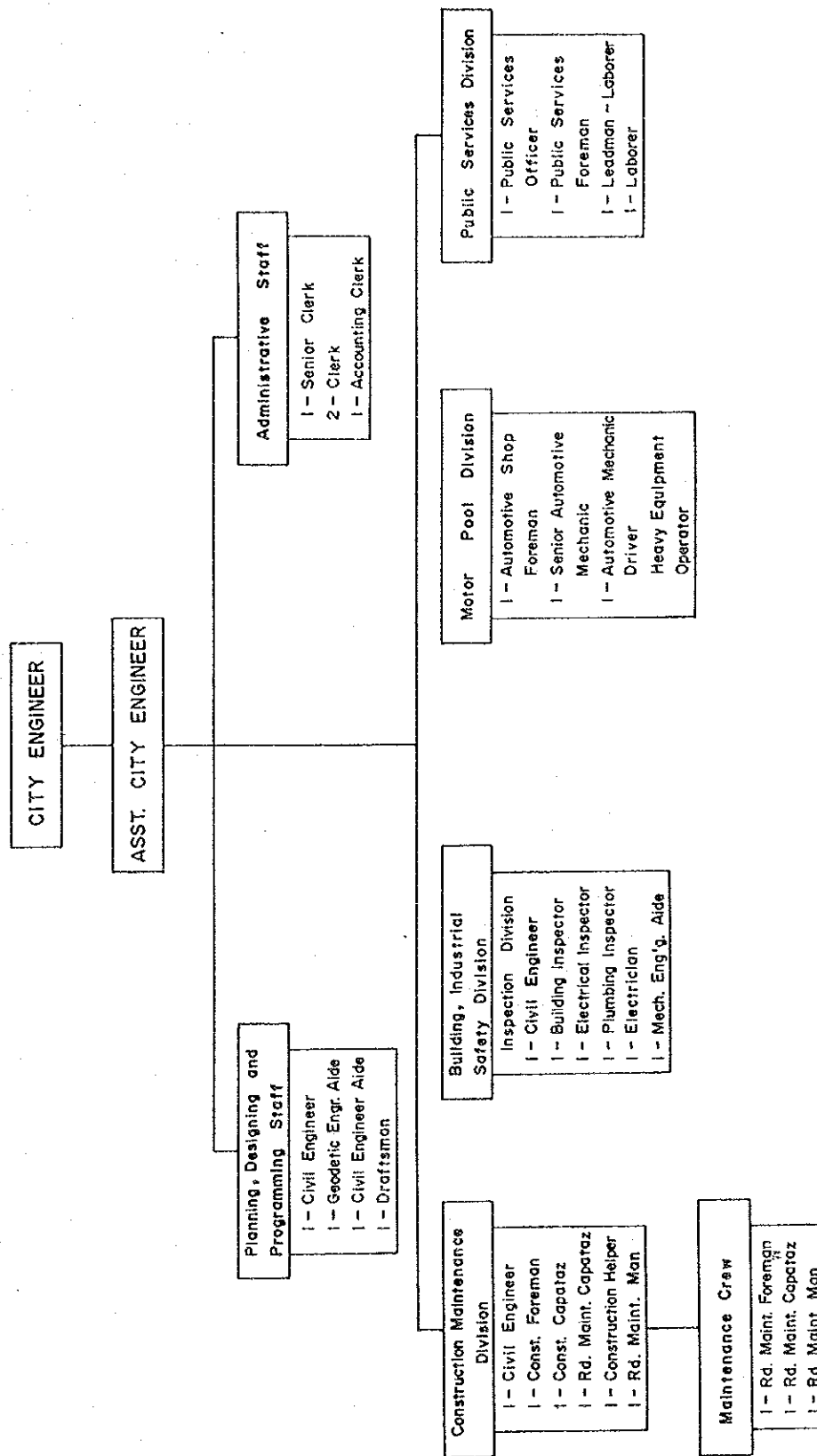


FIGURE 3

