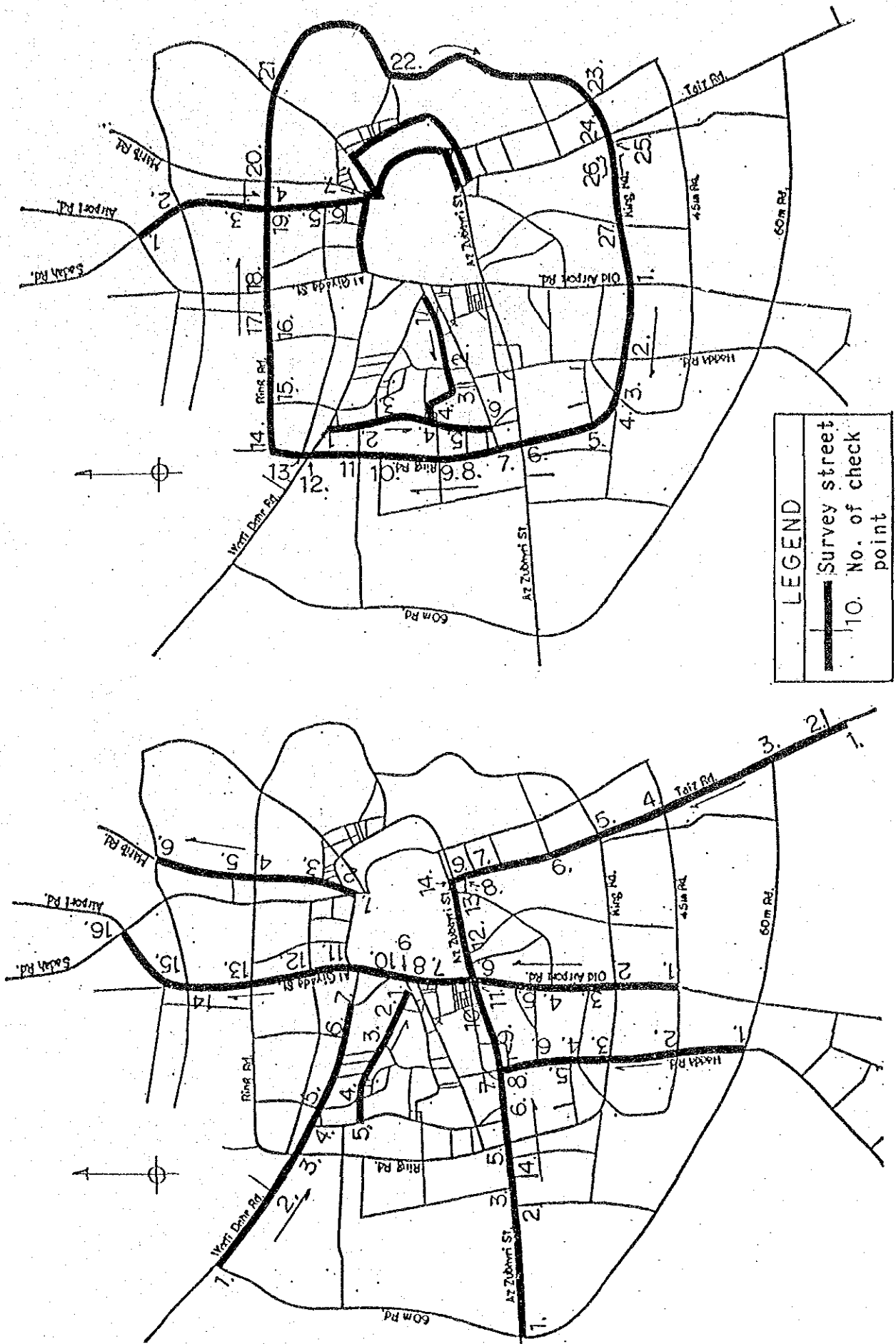


Appendix Fig. 8.4.1 Travel Speed Survey Locations, Sana'a



APPENDIX TO CHAPTER 10

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Airport/Sadda (Pr. 1)

Node 5

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project								
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d	Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d	
Without Project				①	2341	4094	0.571	0.315	1.813	①	1990	4094	0.401	0.386	1.039	
				②	2024	4290	0.471	0.260	1.812	②	1721	4290	0.486*	0.204	1.259	
				③	1349	4071	0.331	0.183	1.809	③	351	1430	0.212	0.282*	0.224	1.259
				④	1282	4064	0.319	0.176	1.813	④	303	1365	0.257*	0.224	1.196	
With Project				①	-	-	1.690	0.933	1.811	①	1990	4094	0.401	0.386	1.039	
				②	-	-	1.690	0.933	1.811	②	1721	4290	0.486*	0.204	1.259	
				③	-	-	1.690	0.933	1.811	③	351	1430	0.212	0.282*	0.224	1.259
				④	-	-	1.690	0.933	1.811	④	303	1365	0.257*	0.224	1.196	
				Existing Control System; Signalized with Police-man Cycle Time ; 100 (sec)												

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Airport/No. 10, No. 19 (Pr. 1)

Node 6

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree
				PCU/hour (1992) a	hr in PCU b	Split c = a/b	Split Adjusted d	
Without Project			1 ^φ	200	1357	0.147	0.095	1.547
			2 ^φ	2001	4094	0.488	0.315	1.549
			3 ^φ	832	2762	0.301	0.194	1.552
			4 ^φ	2064	4056	0.508	0.328	1.549
With Project			1 ^φ	200	2714	0.074*	0.054	1.370
			2 ^φ	2001	4094	0.488*	0.359	1.359
			3 ^φ	832	2762	0.301*	0.219	1.374
			4 ^φ	867	2064	0.420*	0.305	1.377
				1197	1352	0.885	0.933	0.949
				-	-	1.283	0.933	1.375

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Airport/Ring Rd. (Pr. 2)

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Saturation Degree
				Lane	a	b	c = a/b	
Without Project			1 ^φ	1723	4053	0.425	0.225	1.667
			2 ^φ	1128	4143	0.272	0.164	1.659
			3 ^φ	2052	5464	0.375	0.225	1.667
			4 ^φ	1966	4098	0.480	0.289	1.661
With Project	<p>Existing</p> <p>Control System; Signalized with Police-man Cycle Time ; 100 (sec)</p>		1 ^φ	946	2702	0.350*	0.232	1.509
			2 ^φ	853	4143	0.206	0.382	0.888
			3 ^φ	777	1351	0.575*	0.319	1.505
			4 ^φ	275	1381	0.199	0.319	0.521
			5 ^φ	2052	5464	0.375	0.319	1.176
			6 ^φ	1966	4098	0.480*	0.319	1.505
					1.552	0.933	1.663	
					1.013	0.933	1.086	

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection: Airport/No. 7, No. 9 (Pr. 2)

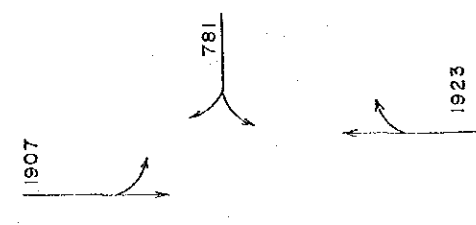
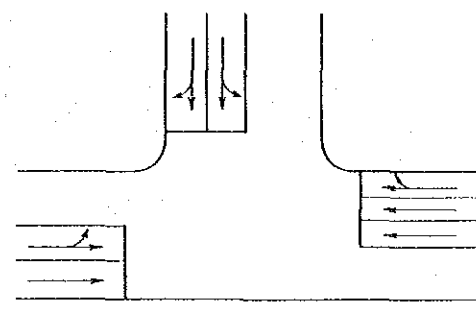
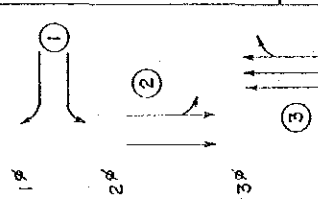
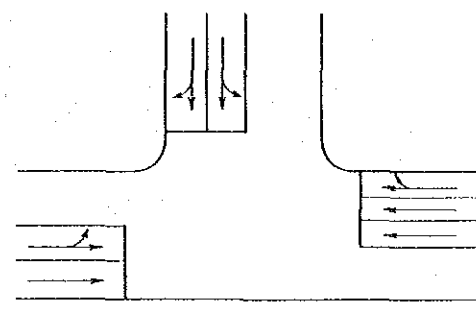
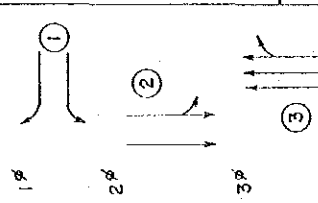
Node 20

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted		Saturation Degree
Without Project				a	b	c = a/b	d	c/d	
				①	863	2776	0.311	0.178	1.747
				②	978	2776	0.352	0.202	1.743
				③	1717	4098	0.419	0.241	1.739
				2399	4107	0.584	0.335	1.743	
With Project	<p>Existing Control System; Signalized with Police-man Cycle Time : 95 (sec)</p>			a	b	c = a/b	d	c/d	
				①	863	2776	0.311	0.360	0.864
				②	978	2776	0.352*	0.596	0.978
				③	1717	4098	0.419	0.596	0.703
				2399	4107	0.584*	0.956	0.980	
				-	-	1.666	0.956	1.743	
				-	-	0.936	0.956	0.979	

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Airport - Shuub (Pr. 2)

Node 25

	PCU per Hour in 1992	Intersection	Phase	FCU/hour (1992)				Saturation Degree	
				Lane	a	b	c = a/b		d
Without Project				①	781	2778	0.281	0.186	1.511
				②	1907	2738	0.696	0.460	1.513
				③	1923	4082	0.471	0.310	1.519
With Project	<p>Existing</p> <p>Control System; —</p> <p>Cycle Time ; —</p>			①	781	2778	0.281*	0.275	1.022
				②	1907	2738	0.696*	0.681	1.022
				③	1923	4082	0.471	0.956	0.692
							0.977	0.956	1.022

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ali Abdul Mughni - Bawnlyah (Pr. 2)

Node 44

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Capacity/ hr in PCU		Split Adjusted		Saturation Degree
				Lane	a	b	c = a/b	d	c/d			
Without Project				①	3195	4103	0.778*	1.000	0.778			
				②	2838	4140	0.702		0.702			
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time (sec) ; —</p>			①	-	-	0.078*	0.100	0.780			
				②	3195	4103	0.778*		0.864			
				③	2838	4140	0.702	0.900	0.780			
							0.856	1.000	0.856			

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ali Abdul Mughni - Abdul Nasi (Pr. 2)

Node 45

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project								
				Lane	PCU/hour (1992)	Capacity/hr in PCU	Split	Split Adjusted	Saturation Degree	Lane	PCU/hour (1992)	Capacity/hr in PCU	Split	Split Adjusted	Saturation Degree	
					a	b	c = a/b	d	c/d		a	b	c = a/b	d	c/d	
Without Project	<p>3674</p> <p>200</p> <p>2823</p>			①	200	1357	0.147	0.133	1.105	①	200	2714	0.074	0.072	1.028	
				②	3674	4040	0.909*			②	3674	4040	0.909*			1.028
				③	2823	4050	0.699			③	2823	4050	0.699			0.791
With Project	<p>Existing</p> <p>Control System; —</p> <p>Cycle Time (sec) ; —</p>			①	200	2714	0.074	0.072	1.028	①	200	2714	0.074	0.072	1.028	
				②	3674	4040	0.909*			②	3674	4040	0.909*			1.028
				③	2823	4050	0.699			③	2823	4050	0.699			0.791

Notes: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ali Abdul Mughni - Old Airport - Az Zubayri (Pr. 2)

	PCU per Hour in 1992	Intersection	Phase	Intersection					
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d
Without Project			1 ϕ	3227	5416	0.595	0.276	2.156	
			2 ϕ	2437	5410	0.450	0.208	2.163	
			3 ϕ	3674	5438	0.625	0.289	2.163	
			4 ϕ	1434	4148	0.345	0.160	2.156	
With Project	<p>Existing</p> <p>Control System; Signalized with Police-man Cycle Time ; 105 (sec)</p>		1 ϕ	3227	6770	0.477	0.246	1.939	
			2 ϕ	2437	5410	0.450	0.232	1.940	
			3 ϕ	3674	6798	0.540	0.278	1.942	
			4 ϕ	1434	4148	0.345	0.178	1.938	
				-	-	2.015	0.933	2.160	
						-	1.812	0.933	1.942

Note: Saturation degree = c/d = $a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Old Airport - Ring Rd. (Pr. 3)

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)			Split			Saturation Degree		
				Lane	a	b	c = a/b	Adjusted	d	c/d	Adjusted	d
Without Project				①	1204	5434	0.222	0.212	1.047			
				②	1831	5408	0.339	0.323	1.050			
				③	1075	4064	0.264	0.252	1.048			
				④	741	4167	0.177	0.169	1.047			
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time (sec) : —</p>			①	1024	4075	0.251	0.431	0.582			
				②	1556	4056	0.383*	0.228	0.889			
				③	180	1359	0.132	0.228	0.579			
				④	275	1352	0.203*	0.297	0.890			
				⑤	1075	4064	0.264*	0.297	0.889			
				⑥	741	4167	0.177	0.297	0.596			
						1.002	0.956	1.048				
							0.850	0.956	0.889			

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Old Airport - 45 m (Pr. 3)

Node 91

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/ hr in PCU				Split			Saturation Degree		
				Lane	a	b	c = a/b	Adjusted	d	c/d	Adjusted	d	c/d
Without Project			1 st	①	341	1408	0.242	0.230	1.052				
			2 nd	②	633	1408	0.450	0.427	1.054				
			3 rd	③	949	4167	0.227	0.215	1.056				
			4 th	④	371	4148	0.089	0.084	1.060				
With Project	<p>Existing</p> <p>Control System; —</p> <p>Cycle Time (sec) ; —</p>		1 st	①	51	2816	0.018	0.048					
			2 nd	②	290	2816	0.103	0.271					
			3 rd	③	538	2816	0.191*	0.380	0.503				
			4 th	④	95	2816	0.034	0.089					
			6 th	⑥	807	2778	0.290*	0.503					
			7 th	⑦	142	1389	0.102	0.177					
			8 th	⑧	315	2766	0.114	0.198					
			9 th	⑨	56	1383	0.040	0.069					
									1.008	0.956	1.054		
						0.481	0.956	0.503					

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection: Old Airport - 60 m Rd. (Pr. 3)

Node 96

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted	Degree	Degree
Lane	a	b	c = a/b	d	c/d	c/d	c/d		
Without Project				667	1402	0.475*	0.703	0.676	
				503	1402	0.430		0.612	
				474	1402	0.171	0.253	0.676	
With Project				667	1402	0.475*	0.703	0.676	
				603	1402	0.430		0.612	
				474	1402	0.171*	0.253	0.676	
				0.646		0.646	0.956	0.676	
				0.646		0.646	0.956	0.676	

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Old airport - No. 33 (Pr. 3)

Node 82

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/ (1992) hr in PCU				Saturation Degree	
				Lane	a	b	c = a/b		d
Without Project				①	200	1357	0.147	0.256	0.574
				②	1112	2765	0.402*	0.700	0.574
				③	860	2765	0.311		0.442
With Project					-	-	0.549	0.956	0.574
							- do -		

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection: Az Zubayri/Taiz (Pr. 4)

Node 61

	PCU per Hour in 1992	Intersection	Phase	Capacity/PCU				Saturation Degree
				PCU/hour (1992)	Capacity/hr in PCU	Split	Split Adjusted	
				a	b	c = a/b	d	c/d
Without Project				3220	4056	0.793*	0.489	1.622
				1540	2816	0.546		1.117
				2098	2764	0.758	0.467	1.623
With Project				805	1352	0.595*	0.420	1.417
				2415	4056	0.595*		1.417
				1540	2816	0.546		1.300
				2098	2764	0.758	0.560	1.354
						1.353	0.956	1.415

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (c)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Az Zubayri - No. 4 (Pr. 4)

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/ Saturation Degree					
				PCU/hour (1992)		Capacity/ hr in PCU		Split Adjusted	
				Lane	a	b	c = a/b	d	c/d
Without Project			<p>1ϕ</p> <p>2ϕ</p> <p>3ϕ</p>	①	3220	4058	0.793	0.445	1.782
				②	3050	4056	0.752	0.422	1.782
				③	200	1357	0.147	0.083	1.771
With Project	<p>Existing</p> <p>Control System; Signalized (Nonworking)</p> <p>Cycle Time (sec) ; ---</p>		<p>1ϕ</p> <p>2ϕ</p> <p>3ϕ</p> <p>4ϕ</p> <p>5ϕ</p>	①	2737	4058	0.674*	0.590	1.142
				②	483	1352	0.357	0.296	1.205
				③	2593	4056	0.639	0.352	1.782
				④	457	1352	0.338*	0.296	1.142
				⑤	200	2717	0.074	0.064	1.156
							1.086	0.950	1.143

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection: Az Zubayri - Sayf Benthayazin (Pr. 5)

Node 65

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project							
				Lane	PCU/hour (1992)	Capacity/hr in PCU	Split	Split Adjusted	Saturation Degree	Lane	PCU/hour (1992)	Capacity/hr in PCU	Split	Split Adjusted	Saturation Degree
Without Project				①	2676	4076	0.6556*	0.660	0.994	①	2676	4076	0.6556*	0.660	0.994
				②	2231	4062	0.549		0.832	②	2231	4062	0.549		0.832
				③	400	1357	0.294	0.296	0.993	③	400	1357	0.294	0.296	0.993
With Project				①	2676	4076	0.6556*	0.660	0.994	①	2676	4076	0.6556*	0.660	0.994
				②	2231	4062	0.549		0.832	②	2231	4062	0.549		0.832
				③	400	1357	0.294	0.296	0.993	③	400	1357	0.294	0.296	0.993

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Az Zubayri - No. 30 (Pr. 5)

Node 99

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Capacity/ hr in PCU			Split Adjusted Degree	
				Lane	a	b	c = a/b	Split	Split Adjusted	Saturation Degree		
Without Project				①	2676	4076	0.656	0.656	0.858	0.765		
				②	2679	4076	0.657*	0.657*	0.766			
				③	100	1357	0.074*	0.074*	0.755			
				④	100	1357	0.074	0.074	0.755			
With Project	<p>Existing</p> <p>Control System;</p> <p>Cycle Time (sec) : —</p> <p>Signalized Nonworking</p>			Lane	PCU/hour (1992)	Capacity/ hr in PCU	Split	Split Adjusted	Saturation Degree			
					a	b	c = a/b	d	c/d			
							0.731	0.956	0.767			
							- do -					

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
Intersection; Az Zubayri - Haddah (Pr. 5)

Node 66

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted		
Without Project				Lane	a	b	c = a/b	d	c/d
				①	2411	4071	0.592	0.329	1.799
				②	2679	4076	0.657	0.365	1.800
				③	1764	4101	0.430	0.239	1.799
With Project	<p>Existing</p> <p>Control System; Signalized with Police-man</p> <p>Cycle Time ; 80 (sec)</p>			Lane	a	b	c = a/b	d	c/d
				①	2148	4071	0.528*	0.337	1.567
				②	1991	4076	0.488	0.322	1.448
				③	263	1357	0.194	0.274	0.602
					1764	4101	0.430*	0.274	1.569
							1.464	0.933	1.569

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Az Zubayri - Ring Rd. (Pr. 5)

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation	
				hr in PCU		Split	Split Adjusted	Degree	Degree
				a	b				
				Lane	Capacity/	Split	Split	Saturation	Saturation
					hr in PCU	c = a/b	Adjusted	Degree	Degree
					a	b	d	c/d	c/d
Without Project	<p>2390 (767) 2003 (200) 2110 (472) 1263 (329)</p>			Lane ① Lane ② Lane ③ Lane ④	4071 4077 2758 2762	0.518 0.491 0.867 0.457	0.207 0.196 0.347 0.183	2.502 2.505 2.499 2.497	2.500
With Project	<p>Existing</p> <p>Control System; Signalized with Police-man Cycle Time ; 100 (sec)</p>			Lane ① Lane ② Lane ③ Lane ④ Lane ⑤ Lane ⑥ Lane ⑦ Lane ⑧	4071 4077 1357 1359 2758 2762 1379 1381	0.402 0.442* 0.347* 0.147 0.588* 0.338 0.556* 0.238	0.213 0.167 0.284 0.269	1.887 2.075 2.078 0.880 2.070 1.190 2.066 0.885	2.072

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Az Zubayri - Ad. Dirasat (Pr. 5)

Node 71

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted		
Without Project				Lane	a	b	c = a/b	d	c/d
				①	1266	4332	0.292	0.293	0.997
				②	1561	4332	0.360	0.361	0.997
				③	400	1357	0.295	0.296	0.997
With Project				Lane	a	b	c = a/b	d	c/d
				①	1266	4332	0.292	0.522	0.559
				②	1561	4332	0.360*	0.522	0.690
				③	400	1357	0.295	0.428	0.689
							0.655	0.950	0.689

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Hadda - Ring Rd. (Pr. 6)

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project			
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = e/b	Split Adjusted d	Saturation Degree c/d	Lane	PCU/hour (1992) a
Without Project			1 ϕ	1	1182	4116	0.287	0.212	1.354		
			2 ϕ	2	1057	4076	0.259	0.191	1.356		
			3 ϕ	3	1428	4287	0.333	0.246	1.354		
			4 ϕ	4	1715	4107	0.417	0.307	1.358		
With Project	<p>Existing</p> <p>Control System; Signalized with Police-man Cycle Time : 95 (sec)</p>		1 ϕ	1	1005	2744	0.366*	0.289	1.266		
			2 ϕ	2	899	2717	0.330	0.289	1.142		
			3 ϕ	3	177	1372	0.129*	0.102	1.265		
			4 ϕ	4	158	1359	0.116	0.102	1.137		
			5 ϕ	5	1214	2858	0.425	0.421	1.010		
			6 ϕ	6	1458	2738	0.533*	0.421	1.266		
			7 ϕ	7	214	1429	0.150	0.144	1.042		
			8 ϕ	8	251	1369	0.183*	0.144	1.271		
						1.211	0.956	1.267			

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection

Intersection: Hadda - 45 m Rd. (Pr. 6)

Node 92

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/ hr in PCU				Split Adjusted		Saturation Degree
				a	b	c = a/b	d	c/d	c/d	
Without Project				1	2714	0.074	0.059	1.254		
				2	1408	0.316	0.253		1.249	
				3	4107	0.401	0.322		1.245	
				4	4107	0.402	0.322		1.248	
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time (sec) ; —</p>			1	1337	0.022	0.956	1.248		
				2	2714	0.063			0.239	
				3	2816	0.134*				
				4	1408	0.048				
				5	4107	0.401				
				6	4107	0.402*				
				-	-	1.193	0.956	1.248		

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Hadda - 60 m Rd. (Pr. 6)

Node 94

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project						
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d	Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted e
Without Project				①	252	1402	0.179	0.119	1504					
				②	415	1402	0.296	0.196	1.510					
				③	1318	4107	0.320	0.212	1.509					
				④	1594	2460	0.647	0.429	1.508					
With Project	<p>Existing Control System; Police Operation Cycle Time (sec) ; —</p>			①	252	4206	0.060	0.179	0.335					
				②	415	4206	0.099*	0.179	0.553					
				③	1318	4107	0.320	0.777	0.412					
				④	1594	3690	0.432*	0.777	0.556					
							1.444	0.956	1.510					
											0.530	0.956	0.554	

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection

Intersection; Taiz - (Pr. 7)

Node 101

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted		Split Adjusted
Without Project				Lane	a	b	c = a/b	d	c/d
				①	100	1357	0.074	0.085	0.871
				②	1789	2764	0.647		0.743
With Project				Lane	a	b	c = a/b	d	c/d
				③	2098	2764	0.758*	0.871	0.870
					-	-	0.832	0.956	0.870
	Existing								
	Control System; -								
	Cycle Time (sec) ; -								

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Taiz - Ring Rd. (Pr. 7)

Node 88

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project									
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d	Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d		
Without Project				①	1382	4056	0.341	0.222	1.536	①	847	4056	0.209	0.286	0.731		
				②	1309	4071	0.322	0.210	1.533	②	964	2714	0.356*	0.317	1.245		
				③	1789	4146	0.431	0.281	1.534	③	535	1352	0.395*	0.347	1.242		
				④	1536	4233	0.362	0.237	1.527	④	345	1353	0.254	0.362	1.043		
With Project				Existing Control System: Signalized with Police-man Cycle Time : 100 (sec)				①	1789	4146	0.431*	0.347	1.242				
				②	1536	4233	0.362	0.237	1.527	②	1536	4233	0.362	0.237	1.527		
								③	1789	4146	0.431*	0.347	1.242				
								④	1536	4233	0.362	0.237	1.527				
												⑤	1789	4146	0.431*	0.347	1.242
												⑥	1536	4233	0.362	0.237	1.527
														1.182	0.950	1.244	

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Taiz - 45 m Rd. (Pr. 7)

	PCU per Hour in 1992	Intersection	Phase	Capacity/ Saturation Degree				
				PCU/hour (1992) a	Capacity/ hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d
Without Project			1 st	494	2816	0.175	0.101	1.733
			2 nd	753	2814	0.268	0.154	1.740
			3 rd	1631	2822	0.578	0.332	1.741
			4 th	1783	2816	0.633	0.363	1.744
With Project			1 st	230	4224	0.054	0.105	0.514
			2 nd	325	4221	0.077*	0.188	0.733
			3 rd	264	1407	0.188	0.414	0.454
			4 th	428	1407	0.304*	0.431	0.734
			5 th	1631	5644	0.289	0.431	0.670
			6 th	1783	5632	0.317*	0.431	0.735

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Taiz - 60 m Rd. (Pr. 7)

Node 97

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/			Saturation Degree		
				hr in PCU	hr in PCU	Split			
Lane	a	b	c = a/b	d	c/d				
Without Project				①	947	2804	0.338	0.187	1.807
				②	2021	2816	0.718	0.398	1.804
				③	1380	2858	0.658	0.365	1.803
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time (sec) ; —</p>			①	947	5608	0.169	0.195	0.867
				②	2021	4224	0.478*	0.553	0.864
				③	1380	4287	0.322	0.202	0.582
				④	500	2858	0.175	0.202	0.866
							0.822	0.950	0.865

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Moslasfa Al Thourah - Wadi Al Qasr (Pr. 8)

Node 50

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree
				PCU/hour (1992)	hr in PCU	Split Adjusted	Split Adjusted	
Lane	a	b	c = a/b	d	c/d			
Without Project			1 st	1359	2816	0.483	0.276	1.750
			2 nd	1024	2762	0.371	0.212	1.750
			3 rd	1256	2714	0.462	0.264	1.750
			4 th	1468	4212	0.348	0.198	1.750
With Project	<p>Existing Control System; Signalized with Police man Cycle Time ; 60 (sec)</p>		1 st	1359	2816	0.483*	0.486	0.994
			2 nd	1024	2762	0.371	0.464	0.750
			3 rd	1256	2714	0.462*	0.464	0.996
			4 th	1468	4212	0.348	0.464	0.750
					1.664	0.950	1.752	
						0.945	0.950	0.995

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

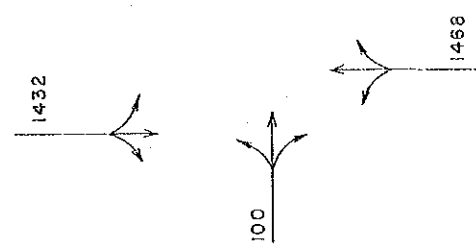
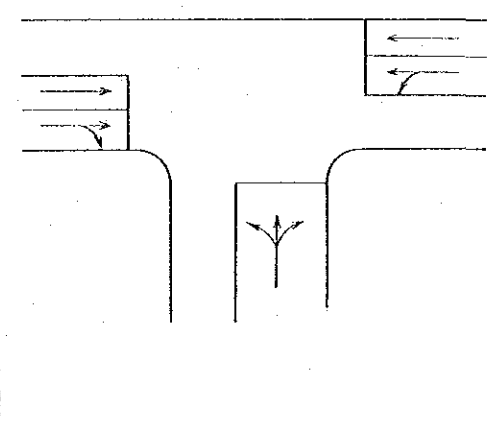
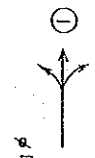
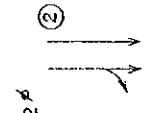
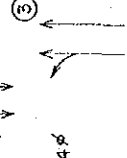
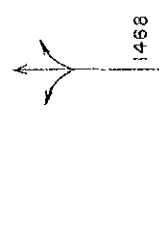
Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Mostasfa Al Thourah - Ring Rd. (Pr. 8)

Node 87

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)			Capacity/hr in PCU			Split Adjusted Degree			
				Lane	a	b	c = a/b	Split Adjusted	Saturation Degree	Lane	a	b	c = a/b
Without Project				①	1085	4071	0.267	0.266	1.004				
				②	563	4080	0.138	0.138	1.000				
				③	1432	4212	0.340	0.339	1.003				
				④	709	4221	0.168	0.168	1.000				
With Project	<p>Existing</p> <p>Control System; Signalized with Police man</p> <p>Cycle Time : 80 (sec)</p>			①	922	4071	0.226*	0.263	0.859				
				②	479	4080	0.117	0.135	0.445				
				③	163	1404	0.116*	0.135	0.859				
				④	84	1404	0.060	0.135	0.444				
				⑤	1218	4212	0.289*	0.336	0.860				
				⑥	603	4221	0.143	0.336	0.426				
				⑦	214	1404	0.152*	0.177	0.859				
				⑧	106	1404	0.075	0.177	0.424				
						0.913	0.911	1.002					
											0.783	0.911	0.859

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Mostasfa Al Thourah (Pr. 8)

	PCU per Hour in 1992	Intersection	Phase	Lane				
				PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d
Without Project			  	①	1357	0.074	0.118	0.627
				②	2808	0.510	0.837	0.609
				③	2808	0.523*	0.837	0.625
With Project					-	0.597	0.956	0.624
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d
	Existing Control System; — Cycle Time (sec) ; —					- do -		
	Signalized Nonworking							

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Wadi Dahr - No. 14 (Pr. 9)

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree
				PCU/hour (1992) a	Capacity/ hr in PCU b	Split c = a/b	Split Adjusted d	
Without Project				①	2770	0.419*	0.871	0.481
				②	2770	0.113		0.130
				③	1357	0.041	0.085	0.482
With Project	<p>Existing</p> <p>Control System; —</p> <p>Cycle Time (sec) ; —</p>			-	-	0.460	0.956	0.481
				①	2770	0.419*	0.871	0.481
				②	2770	0.113		0.130
				③	1357	0.041	0.085	0.482
				-	-	0.460	0.956	0.481

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Wadi Dahr - (Pr. 9)

Node 29

	PCU per Hour in 1992	Intersection	Phase	Capacity/Adjusted Degree				
				PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d
Without Project			 1 ϕ	1161	2770	0.419	0.472	0.888
			 2 ϕ	316	2770	0.113	0.127	0.890
			 3 ϕ	445	1402	0.317	0.357	0.888
With Project	 Existing Control System; --- Cycle Time (sec) ; ---		 1 ϕ	1161	2770	0.419*	0.544	0.770
			 2 ϕ	316	2770	0.113	0.113	0.208
			 3 ϕ	445	1402	0.317	0.412	0.769
						0.736	0.956	0.770

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection

Intersection; Wadi Dahr - No. 8 (Pr. 9)

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project							
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d	Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d
Without Project				①	630	2770	0.227*	0.583	0.389	①	630	2770	0.227*	0.583	0.389
				②	316	2770	0.113		0.194	②	316	2770	0.113		0.194
				③	55	1357	0.040		0.107	③	55	1357	0.040		0.107
				④	200	1383	0.145*		0.389	④	200	1383	0.145*		0.389
With Project				①	630	2770	0.227*	0.583	0.389	①	630	2770	0.227*	0.583	0.389
				②	316	2770	0.113		0.194	②	316	2770	0.113		0.194
				③	55	1357	0.040		0.107	③	55	1357	0.040		0.107
				④	200	1383	0.145*		0.389	④	200	1383	0.145*		0.389
				Existing Control System: — Cycle Time (sec) : —											

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Wadi Daha - Ziraah (Pr. 9)

Node 31

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/ Saturation				
				PCU/hour (1992)	Capacity/ br in PCU	Split	Split Adjusted	Saturation Degree
Lane	a	b	c = a/b	d	c/d			
Without Project			1 ϕ	1038	2712	0.383	0.364	1.052
			2 ϕ	1033	4155	0.248	0.235	1.055
			3 ϕ	1558	4142	0.376	0.357	1.053
With Project	<p>Existing Control System; Signalized (Nonworking) Cycle Time (sec) ; ---</p>		1 ϕ	1038	2712	0.383*	0.482	0.795
			2 ϕ	1033	4155	0.248	0.474	0.515
			3 ϕ	1558	4142	0.376	0.474	0.793
						0.759	0.956	0.794

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Wadi Dahr - Ring Rd. (Pr. 9)

Node 32

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project					
				PCU/hour (1992)	Capacity/hr in PCU	Split	Split Adjusted	Saturation Degree	PCU/hour (1992)	Capacity/hr in PCU	Split	Split Adjusted	Saturation Degree
				a	b	c = a/b	d	c/d	a	b	c = a/b	d	c/d
①			1 ϕ	876	4224	0.207	0.178	1.163	363	1408	0.258*	0.194	1.330
②			2 ϕ					1.164	375	2712	0.138		0.711
③			3 ϕ					1.160	513	2816	0.182*	0.138	1.319
④			4 ϕ					1.164	230	1356	0.170	0.138	1.231
									794	2179	0.292	0.456	0.640
									1673	2760	0.606*		1.329
									179	1813	0.099	0.145	0.683
									355	1840	0.193*	0.145	1.331
									-	-	1.239	0.933	1.227

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ring Rd./No. 1 (Pr. 10)

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted		PCU/hour (1992)
Without Project	<p>2163 400 1660</p>		<p>① ② ③</p>	①	1357	0.294	0.170	1.729	
				②	2858	0.756	0.438	1.726	
				③	2760	0.601	0.348	1.727	
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time (sec) ; —</p>		<p>① ② ③</p>	①	1357	0.294*	0.246	1.195	
				②	2756	0.667*	0.559	1.193	
				③	1378	0.235	0.151	0.420	
				④	2760	0.511		0.914	
				⑤	1380	0.180	0.151	1.192	
							1.141	0.956	1.194

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ring Rd./No. 25 (Pr. 10)

Node 48

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Capacity/ hr in PCU			
				a	b	c = a/b	d	a	b	c = a/b	d
Without Project			1 st	343	2762	0.184	0.112	1.643			
			2 nd	200	1357	0.147	0.090	1.633			
			3 rd	1569	2760	0.568	0.347	1.637			
			4 th	1634	2760	0.664	0.406	1.635			
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time : —</p> <p>(sec)</p>		1 st	343	2762	0.184*	0.186	0.989			
			2 nd	200	1357	0.147	0.147	0.790			
			3 rd	1334	2760	0.483	0.569	0.849			
			4 th	1559	2760	0.564*	0.569	0.991			
			5 th	235	1380	0.170	0.201	0.846			
			6 th	275	1380	0.199*	0.201	0.990			
						0.947	0.956	0.991			

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ring Rd./No. 15 (Pr. 10)

PCU per Hour in 1992		Intersection		Phase		PCU/hour Capacity/ Saturation				
Lane	a	b	c = a/b	d	c/d	a	b	c = a/b	d	c/d
Without Project				①	1.750	200	1357	0.147	0.084	1.750
				②	1.729	200	1357	0.147	0.085	1.729
				③	1.738	1988	2558	0.695	0.400	1.738
				④	1.661	1852	2756	0.671	0.404	1.661
With Project				①	1.089	200	1357	0.147*	0.135	1.089
				②	1.089	200	1357	0.147	0.135	1.089
				③	1.087	1690	2558	0.660*	0.607	1.087
				④	0.941	1574	2756	0.571	0.607	0.941
				⑤	1.089	298	1279	0.233*	0.214	1.089
				⑥	0.944	278	1378	0.202	0.214	0.944
								1.040	0.956	1.088

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ziraah/No. 9 (Pr. 11)

Node 47

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted		
Without Project			1φ 2φ 3φ	Lane	a	b	c = a/b	d	c/d
				①	752	1405	0.534	0.288	1.854
				②	1053	1390	0.757	0.408	1.855
				③	673	1393	0.483	0.260	1.858
With Project	Existing Control System: — Cycle Time (sec) : —		1φ 2φ 3φ	Lane	a	b	c = a/b	d	c/d
				①	752	1405	0.534*	0.295	1.352
				②	1053	1390	0.757*	0.560	1.352
				③	673	1393	0.483	0.560	0.863
							1.291	0.956	1.350

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Jamal Abdul Nasi (Pr. II)

Node 52

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted	
Lane	a	b	c = a/b	d	c/d			
Without Project			1 ^φ	200	1357	0.147	0.107	1.374
			2 ^φ	961	1393	0.689	0.501	1.375
			3 ^φ	673	1406	0.478	0.348	1.374
With Project			1 ^φ	200	1357	0.147*	0.168	0.875
			2 ^φ	961	1393	0.689*	0.788	0.874
			3 ^φ	673	1406	0.478	0.788	0.607
					0.836	0.956	0.874	

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Saddah/Ring Rd. (Pr. 12)

Node 13

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/ Saturation Degree					
				Lane	(1992) a	Capacity/ hr in PCU b	Split Adjusted c = a/b	Split Adjusted d	Saturation Degree c/d
Without Project			<p>1st →</p> <p>2nd ←</p> <p>3rd ↑</p> <p>4th ↓</p>	①	1125	2762	0.407	0.279	1.459
				②	907	4107	0.220	0.151	1.457
				③	1657	4116	0.402	0.276	1.457
				④	1226	4139	0.296	0.203	1.458
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time (sec) : —</p>		<p>1st →</p> <p>2nd ←</p> <p>3rd ↑</p> <p>4th ↓</p>	①	691	2762	0.250*	0.179	1.397
				②	668	2738	0.244	0.179	1.363
				③	435	1381	0.315*	0.225	1.400
				④	239	1369	0.175	0.225	0.778
					1546	2744	0.563*	0.403	1.397
					1025	2759	0.372	0.403	0.923
					111	1372	0.081	0.104	0.779
					201	1370	0.146*	0.104	1.404
							1.274	0.911	1.398

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Saddah/Northeastern Boulevard (Pr. 12)

Node 8

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Capacity/ hr in PCU		Split Adjusted		Saturation Degree
				Lane	a	b	c = a/b	d	c/d			
Without Project				①	132	3940	0.033	0.032	1.031			
				②	233	2756	0.084	0.081	1.037			
				③	1657	4067	0.407	0.392	1.038			
				④	1282	2744	0.467	0.450	1.038			
With Project				①	132	3940	0.033	0.146	0.226			
				②	233	2756	0.084*	0.146	0.575			
				③	1657	4067	0.407	0.810	0.502			
				④	1282	2744	0.467*	0.810	0.577			
							0.551	0.956	0.576			

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Marib/Ring Rd. (Pr. 13)

Node 12

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Saturation Degree	
				Lane	Capacity/ hr in PCU	Split	Split Adjusted	c/d	c/d
Without Project				1	4107	0.293	0.287	1.021	
				2	4080	0.218	0.213	1.023	
				3	2762	0.377	0.369	1.022	
				4	4143	0.089	0.087	1.023	
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time ; ---</p>			1	2738	0.374*	0.405	0.923	
				2	2720	0.278		0.686	
				3	1369	0.132*		0.923	
				4	1360	0.099	0.143	0.592	
				5	2762	0.377*	0.408	0.924	
				6	4143	0.089	0.089	0.218	
						0.883	0.956	0.924	

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection

Intersection; Ring Rd./Ath Thalathin (Pr. 14)
(78 - a)

Node 78

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree	
				PCU/hour (1992)	hr in PCU	Split Adjusted	Split Adjusted		
Without Project			<p>1st →</p> <p>2nd ←</p> <p>3rd ←</p>	①	200	1357	0.147	0.232	0.634
				②	1182	2762	0.427	0.724	0.590
				③	1263	2744	0.460*		0.635
With Project	<p>Existing</p> <p>Control System; —</p> <p>Cycle Time (sec) ; —</p>		<p>1st →</p> <p>2nd ←</p> <p>3rd ←</p>	①	200	1357	0.147*	0.232	0.634
				②	1182	2762	0.427	0.724	0.590
				③	1263	2744	0.460*		0.635
							0.607	0.956	0.635

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume}/\text{Lane Capacity}$
* is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ring Rd/.No. 9 (Pr. 14)
 (78 - a)

Node 78

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/ hr in PCU				Saturation Degree	
				Lane	a	b	c = a/b		Split Adjusted d
Without Project				①	1182	2762	0.427	0.346	1.234
				②	1263	2744	0.460	0.372	1.237
				③	200	1357	0.147	0.119	1.235
				④	200	1357	0.147	0.119	1.235
With Project	<p>Existing</p> <p>Control System: ---</p> <p>Cycle Time (sec) ; ---</p>			①	1182	2762	0.427	0.724	0.590
				②	1263	2744	0.460*	0.232	0.634
				③	200	1357	0.147*	0.607	0.635
				④	200	1357	0.147		

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Ring Rd./No. 28 (Pr. 14)

Node 100

	PCU per Hour in 1992	Intersection	Phase	Without Project				With Project							
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d	Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/d
Without Project				①	1789	4146	0.340	0.235	1.447	①	1789	4146	0.340	0.235	1.447
				②	1831	4056	0.451	0.312	1.446	②	1831	4056	0.451	0.312	1.446
				③	400	1357	0.295	0.204	1.446	③	400	1357	0.295	0.204	1.446
				④	400	1357	0.295	0.214	1.379	④	400	1357	0.295	0.214	1.379
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time ; —</p>			①	1789	4146	0.340	0.578	0.588	①	1789	4146	0.340	0.578	0.588
				②	1831	4056	0.451*	0.378	0.780	②	1831	4056	0.451*	0.378	0.780
				③	400	1357	0.295*	0.378	0.780	③	400	1357	0.295*	0.378	0.780
				④	400	1357	0.295	0.295	0.780	④	400	1357	0.295	0.295	0.780
												0.746	0.956	0.780	

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
Intersection; Jamal - Al. Jaynai (Pr. 15)

Node 65

	PCU per Hour in 1992	Intersection	Phase	Without Project			With Project		
				Lane	PCU/hour (1992) a	Capacity/hr in PCU b	Split c = a/b	Split Adjusted d	Saturation Degree c/e
Without Project				①	2322	2816	0.825	0.495	1.667
				②	1187	2762	0.430	0.258	1.667
				③	915	2790	0.328	0.197	1.665
				-	-	-	1.583	0.950	1.667
				①	2322	2816	0.825*	0.555	1.486
				②	831	2762	0.301	0.221	1.484
With Project	<p>Existing</p> <p>Control System; Signalized with Police man</p> <p>Cycle Time ; -</p> <p>(sec)</p>			①	2322	2816	0.825*	0.555	1.486
				②	831	2762	0.301	0.221	1.484
				③	356	1381	0.258	0.174	1.483
				④	915	2790	0.328	0.221	1.484
				-	-	-	1.411	0.950	1.485

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Jamal - Ali Uthman (Pr. 15)

Node 63

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Capacity/ hr in PCU		Split Adjusted Degree	
				Lane	a	b	c = a/b	d	c/d	Split Adjusted Degree	Saturation Degree
Without Project				①	1927	2738	0.703	0.357	1.969		
				②	2391	2738	0.873	0.448	1.971		
				③	400	2714	0.147	0.075	1.960		
				④	400	2714	0.147	0.075	1.960		
With Project	<p>Existing</p> <p>Control System; Signalized with Police man</p> <p>Cycle Time (sec) ; -</p>			①	1542	2738	0.563	0.556	1.013		
				②	1913	2738	0.699*	0.277	1.257		
				③	385	1369	0.281	0.117	1.014		
				④	478	1369	0.349*	0.117	1.260		
				⑤	400	2714	0.147*	0.117	1.256		
				⑥	400	2714	0.147	0.117	1.256		
				-	-	1.870	0.950	1.968			
						-	1.195	0.950	1.258		

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Jamal - Central Bank (Pr. 15)

Node 57

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/ hr in PCU			Saturation Degree	
				Lane	a	b		c = a/b
Without Project			1 st	1336	2750	0.486	0.280	1.736
			2 nd	2129	2750	0.774	0.447	1.732
			3 rd	1048	2714	0.386	0.223	1.731
With Project	<p>Control System; Signalized with Police man Cycle Time (sec) ; -</p>		1 st	1336	2750	0.486	0.448	1.085
			2 nd	1704	2750	0.620*	0.448	1.384
			3 rd	425	1375	0.309	0.223	1.386
			4 th	1048	2714	0.386	0.279	1.384
				-	-	1.646	0.950	1.733
				-	-	1.315	0.950	1.384

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Jamal - Central Blvd. (Pr. 15)

Node 56

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted	Degree	Degree
Without Project			 	2017	2750	0.733	0.496	1.478	
				1444	2750	0.525	0.355	1.479	
				400	2714	0.147	0.099	1.485	
				-	-	1.405	0.950	1.479	
With Project			 	1413	2750	0.514	0.449	1.145	
				1444	2750	0.525*	0.449	1.169	
				604	1375	0.439	0.375	1.171	
				400	2714	0.147	0.126	1.167	
				-	-	1.111	0.950	1.169	

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Jamal - (1) (Pr. 15)

Node 54 (A)

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)			Capacity/ hr in PCU			Split Adjusted			Saturation Degree					
				a	b	c = a/b	a	b	c = a/b	d	c/d	a	b	c = a/b	d	c/d		
Without Project				1	1128	2750	0.410	0.392	1.046	①		2	1205	2750	0.438	0.418	1.048	②
				3	200	1357	0.147	0.140	1.050	③								
With Project	<p>Existing</p> <p>Control System; -</p> <p>Cycle Time (sec) ; -</p>			1	903	2750	0.328	0.556	0.590	①	2	1205	2750	0.438*	0.788	②		
				3	225	1375	0.164	0.208	0.788	③								
				4	200	1357	0.147	0.186	0.790	④								

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
Intersection; Jamal - (2) (Pr. 15)

Node 54 (3)

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree
				PCU/hour (1992)	Capacity/ hr in PCU	Split	Split Adjusted	
Lane	a	b	c = a/b	d	c/d			
Without Project			①	2750	0.347	0.324	1.071	
			②	2750	0.525	0.489	1.074	
			③	1357	0.147	0.137	1.073	
With Project	<p>Existing</p> <p>Control System; -</p> <p>Cycle Time (sec) ; -</p>		①	2750	0.277	0.615	0.450	
			②	2750	0.525*		0.854	
			③	1375	0.139	0.163	0.853	
			④	1357	0.147	0.172	0.855	
	-	-	1.019	0.950	1.073			
	-	-	0.811	0.950	0.854			

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Al Jaynai - Suq As Samal (Pr. 15)

Node 53

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Capacity/ hr in PCU			Split Adjusted			Saturation Degree		
				Lane	a	b	c = a/b	a	b	c = a/b	d	c/d	a	b	c/d	
Without Project			1 st	1128	2750	0.410	0.235	1.745								
			2 nd	774	2750	0.281	0.161	1.745								
			3 rd	1496	2753	0.543	0.311	1.746								
			4 th	574	1357	0.423	0.243	1.741								
With Project	<p>Existing</p> <p>Control System; Signalized with Police-man</p> <p>Cycle Time ; -</p> <p>(sec)</p>		1 st	-	-	1.657	0.950	1.744								
			2 nd	1128	2750	0.410	0.363	1.129								
			3 rd	1197	2753	0.435*	0.353	1.198								
			4 th	299	1375	0.217	0.615	0.615								
			5 th	574	1357	0.423*	0.353	1.198								
				774	2750	0.281	0.234	1.201								
				-	-	1.139	0.950	1.199								

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Jamal - Ali Uthman (Pr. 15)

Node 45

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)			Split Adjusted			Saturation Degree				
				Lane	a	b	c = a/b	d	c/d	Lane	a	b	c = a/b	d
Without Project			1 st	1358	1395	0.973	0.504	1.931	1	1358	1395	0.973	0.504	1.931
			2 nd	946	1390	0.681	0.353	1.929	2	946	1390	0.681	0.353	1.929
			3 rd	200	2714	0.074	0.038	1.947	3	200	2714	0.074	0.038	1.947
			4 th	100	1357	0.074	0.038	1.947	4	100	1357	0.074	0.038	1.947
With Project	<p>Existing</p> <p>Control System: -</p> <p>Cycle Time (sec) :-</p>		1 st	1358	1395	0.973*	0.867	1.122	1	1358	1395	0.973*	0.867	1.122
			2 nd	946	1390	0.681	0.066	0.785	2	946	1390	0.681	0.066	0.785
			3 rd	200	2714	0.074*	0.066	1.121	3	200	2714	0.074*	0.066	1.121
			4 th	100	1357	0.074	0.066	1.121	4	100	1357	0.074	0.066	1.121

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Sana'a - Shamsan (Pr. 16)

Node 35

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation Degree
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted	
Without Project			<p>1^φ</p> <p>①</p> <p>2^φ</p> <p>②</p> <p>3^φ</p>	a	b	c = a/b	d	c/d
				2486	2726	0.911	0.408	2.233
				2298	2726	0.843	0.378	2.230
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time ; -</p> <p>(sec)</p>		<p>1^φ</p> <p>②</p> <p>2^φ</p> <p>③</p> <p>3^φ</p> <p>④</p>	a	b	c = a/b	d	c/d
				1989	2726	0.730	0.509	1.434
				2298	2726	0.843*	0.509	1.656
				497	1363	0.365	0.220	1.659
				1004	2750	0.365	0.221	1.651
				-	-	2.119	0.950	2.231
				-	-	1.537	0.950	1.656

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Sana'a - Zaid (Pr. 16)

Node 32

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Saturation Degree
				Lane	Capacity/ hr in PCU	Split	Split Adjusted	
Without Project				a	b	c = a/b	d	c/d
				1899	2726	0.697*	0.417	1.671
				987	2726	0.362		0.868
				211	1363	0.155*	0.093	1.667
With Project				a	b	c = a/b	d	c/d
				770	4059	0.190	0.216	0.880
				991	2754	0.360*		1.667
				509	1357	0.375	0.224	1.674
				-	-	1.587	0.950	1.671

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)
 No BC analysis is conducted because the signal is already in two phase operation.

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection: Sana'a - Al Hukumi (Pr. 16)

Node 50

	PCU per Hour in 1992	Intersection	Phase	Capacity/PCU				Saturation Degree	
				PCU/hour (1992)	Capacity/hr in PCU	Split	Split Adjusted		
				a	b	c = a/b	d	c/d	
Without Project				1	1675	2726	0.614	0.502	1.223
				2	1882	2726	0.690*		1.375
				3	419	1363	0.307	0.251	1.223
				4	470	1363	0.345*		1.375
				5	744	2750	0.271*	0.197	1.376
				6	481	2747	0.175		0.888
With Project	<p>Existing</p> <p>Control System: Signalized with Police-man</p> <p>Cycle Time (sec) ; -</p>								

Note: Saturation degree = $c/d = a/(bxc) = \text{Volume/Lane Capacity}$
 * is used for Split Adjusted (d)
 No BC analysis is conducted because the signal is already in two phase operation

Appendix Table 10.2.1 Capacity Analysis of Intersection

Intersection: Sana'a - Al Moasla (Pr. 16)

Node 44

	PCU per Hour in 1992	Intersection	Phase	Capacity/				Saturation	
				PCU/hour (1992)	hr in PCU	Split	Split Adjusted	Degree	Degree
				a	b	c = a/b	d	c/d	c/d
Without Project				1	2726	0.579	0.540	1.072	
				2	2726	0.748*		1.385	
With Project	<p>Existing</p> <p>Control System; Signalized with Police-man</p> <p>Cycle Time (sec) ; -</p>			3	1363	0.289	0.271	1.066	
				4	1363	0.376*		1.387	
				5	2808	0.169*	0.122	1.385	
				6	2744	0.128		1.049	
							1.293	0.933	1.386

Note: Saturation degree = $c/d = a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)
 No BC analysis is conducted because the signal is already in two phase operation

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Sana'a - Al Matari (Pr. 16)

Node 43

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Capacity/ hr in PCU			Split Adjusted			Saturation Degree	
				Lane	a	b	c = a/b	d	c/d	Split Adjusted	Split Adjusted	Split Adjusted	Split Adjusted	Split Adjusted	Split Adjusted
Without Project			1 ^φ	2068	2726	0.759	0.474	1.601							
			2 ^φ	509	2808	0.181	0.113	1.602							
			3 ^φ	336	1357	0.248	0.155	1.600							
			4 ^φ	417	1357	0.307	0.191	1.607							
With Project	<p>Existing</p> <p>Control System; -</p> <p>Cycle Time (sec) ; -</p>		1 ^φ	-	-	1.495	0.923	1.602							
			2 ^φ	2068	2726	0.759	0.568	1.336							
			3 ^φ	509	2808	0.181	0.135	1.354							
			4 ^φ	336	1357	0.248	0.230	1.078							
				417	1357	0.307*	0.335	1.335							
				-	-	1.247	0.933	1.337							

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Sana'a - Port (Pr. 16)

Node 41

	PCU per Hour in 1992	Intersection	Phase	PCU/hour Capacity/				Saturation Degree	
				Lane	(1992) a	hr in PCU b	Split Adjusted c = a/b		Split Adjusted d
Without Project				①	1603	2783	0.576*	0.470	1.226
				②	535	1392	0.384		0.817
				③	1619	2747	0.589	0.480	1.227
With Project	<p>Existing</p> <p>Control System; Signalized with Police-man</p> <p>Cycle Time (sec) ; -</p>			①	1603	2783	0.576	0.575	1.002
				②	1619	2747	0.589*		1.024
				③	535	1392	0.384	0.375	1.024
					-	-	0.973	0.950	1.024

Note: Saturation degree = c/d = a/(bxc) = Volume/Lane Capacity
 * is used for Split Adjusted (d)

Appendix Table 10.2.1 Capacity Analysis of Intersection
 Intersection; Zaid - Shamsan (Pr. 16)

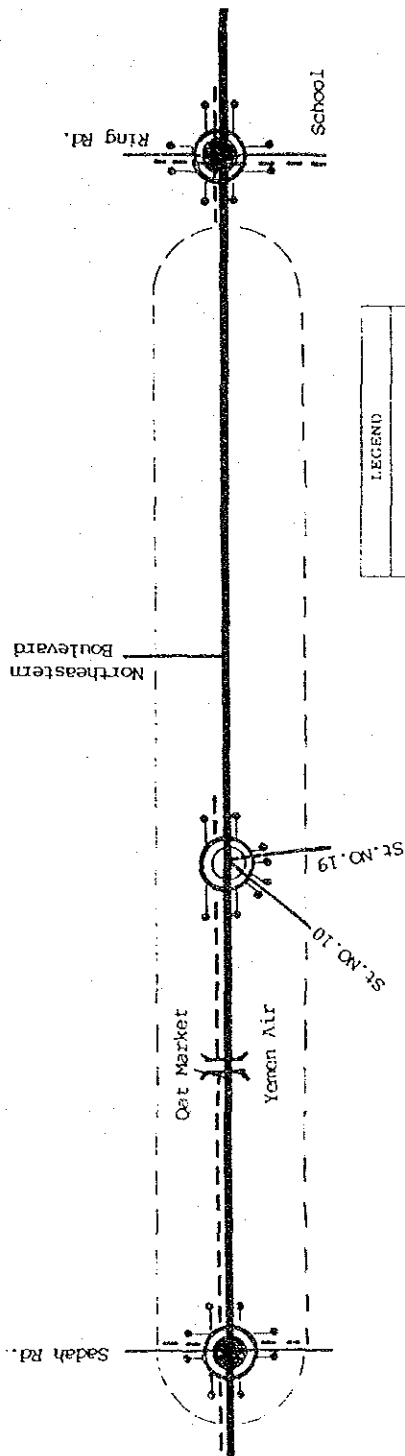
Node 14

	PCU per Hour in 1992	Intersection	Phase	PCU/hour (1992)				Capacity/ hr in PCU				Split Adjusted				Saturation Degree						
				a	b	c = a/b	d	a	b	c = a/b	d	a	b	c = a/b	d	a	b	c = a/b	d			
Without Project				①	462	2751	0.168	0.171	0.982													
				②	872	4063	0.215	0.219	0.982													
				③	502	2790	0.180	0.184	0.978													
				④	956	2714	0.352	0.359	0.981													
With Project	<p>Existing</p> <p>Control System; Police Operation</p> <p>Cycle Time (sec) ; -</p>			①	462	2751	0.168	0.354	0.475													
				②	872	4063	0.215*	0.219	0.607													
				③	502	2790	0.180	0.184	0.311													
				④	956	2714	0.352*	0.359	0.608													

Note: Saturation degree = c/d = $a/(bxc)$ = Volume/Lane Capacity
 * is used for Split Adjusted (d)

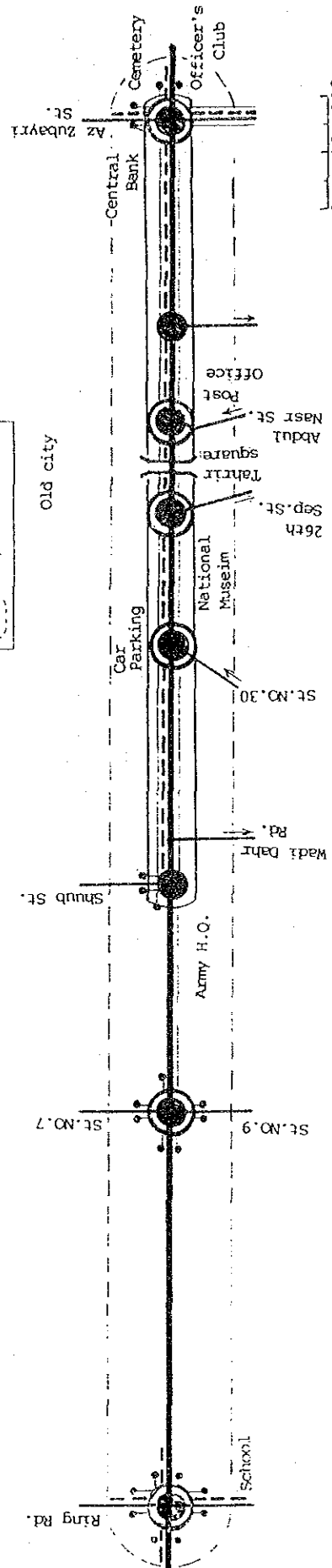
Appendix Fig. 10.2.1 Improvement Plan (1)

Project No.1 Airport Road



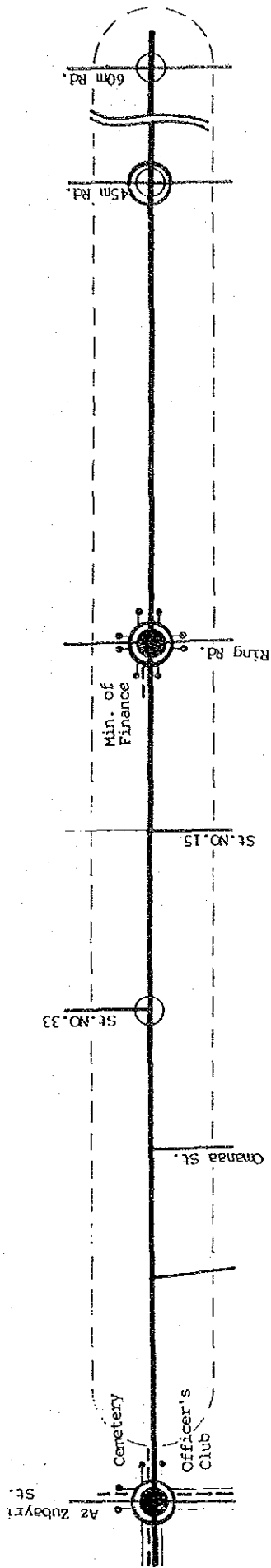
LEGEND	
○	Improvement
○	Intersection
○	Traffic Signal (Mono-dial type)
●	Traffic Signal (Multi-dial type)
○	Guard Fence
□	Coordinated Signal Control
⌋	Pedestrian Bridge
⌋	Parking Restriction
○	Project Location

Project No.2 Al Qiyada & Ali Abdul Mughni Street



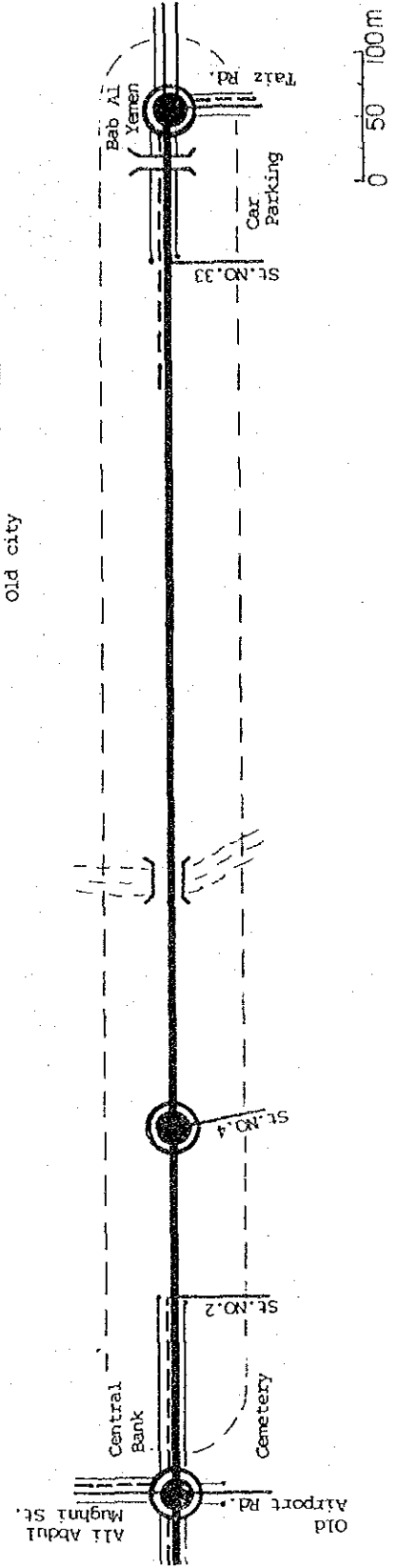
Appendix Fig. 10.2.1 Improvement Plan (2)

Project No.3 Old Airport Road



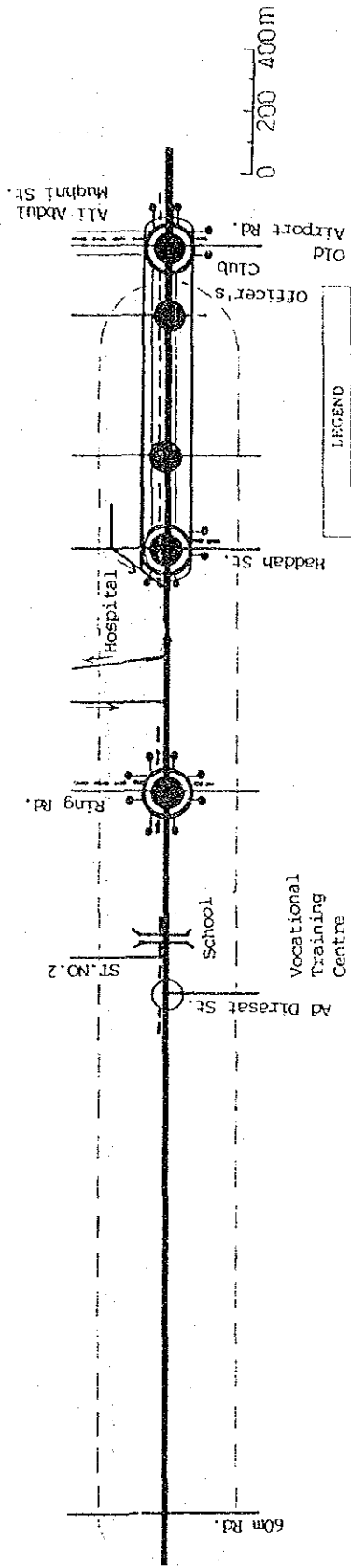
LEGEND	
	Improvement
	Intersection
	Traffic Signal (Mono-dial type)
	Traffic Signal (Multi-dial type)
	Guard Fence
	Coordinated Signal Control
	Pedestrian Bridge
	Marking Restriction
	Project Location

Project No.4 Az Zubayri Street

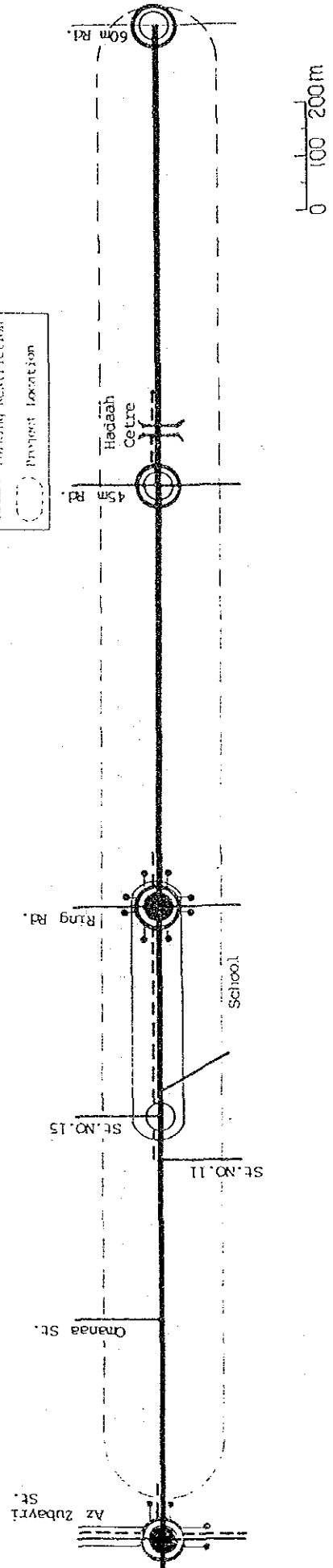


Appendix Fig. 10.2.1 Improvement Plan (3)

Project No.5 Az Zubayri Street

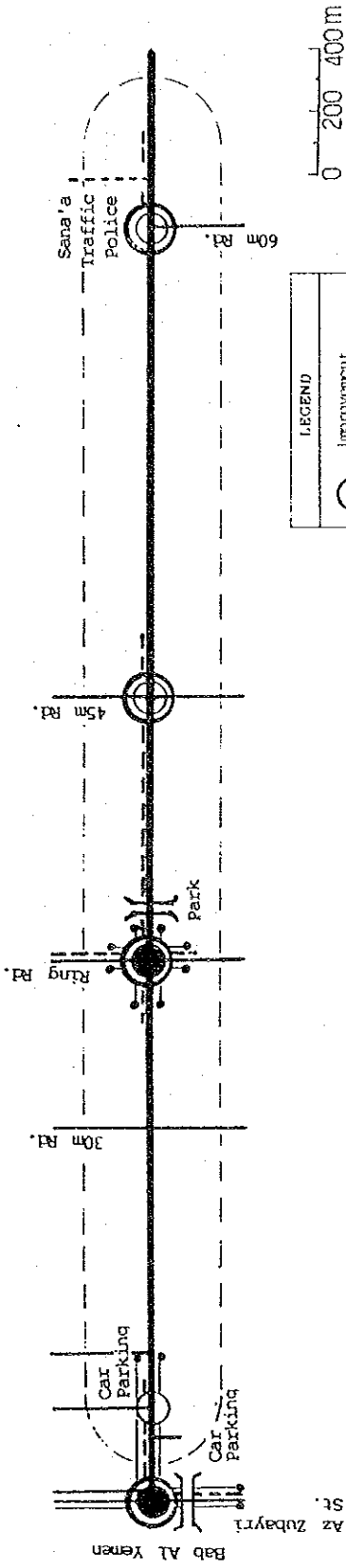


Project No.6 Haddah Street

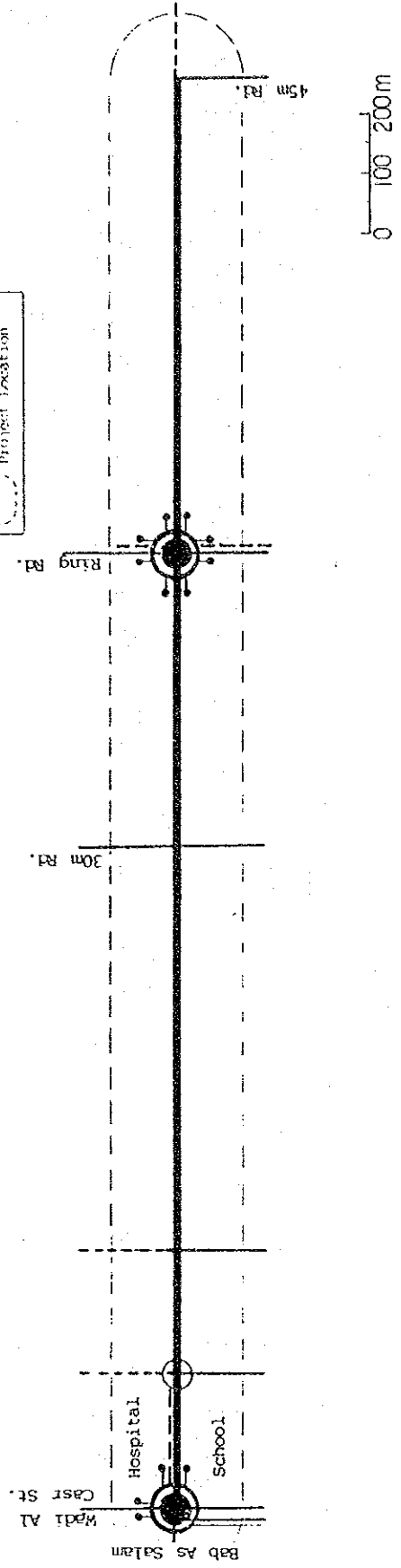


Appendix Fig. 10.2.1 Improvement Plan (4)

Project No.7 Taiz Road

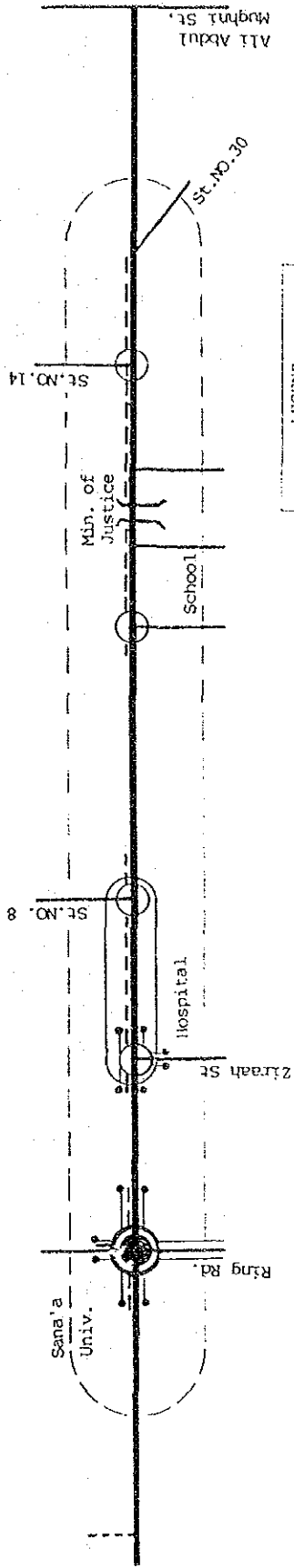


Project No.8 Mostasfa Al Thourah Street



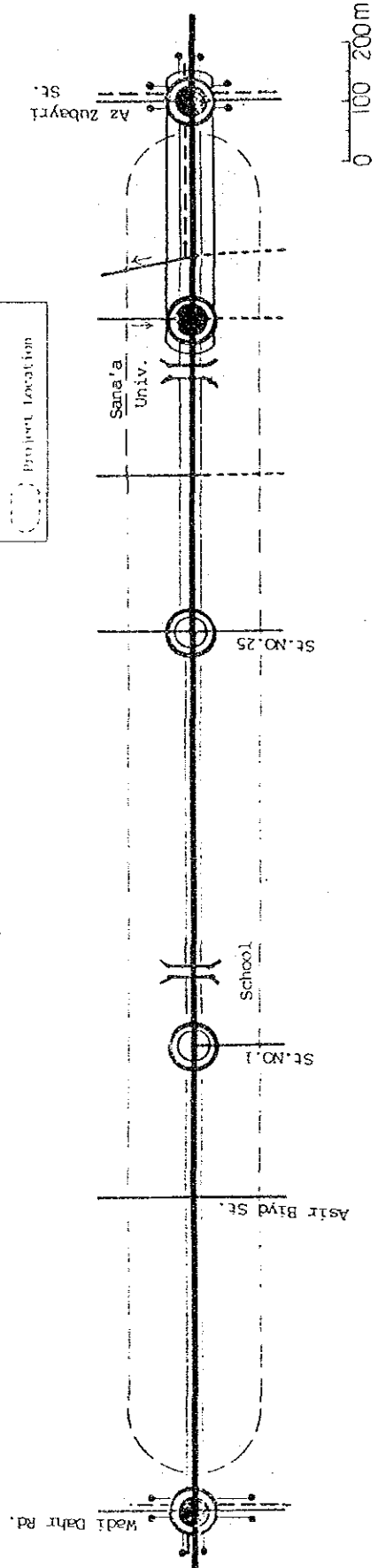
Appendix Fig. 10.2.1 Improvement Plan (5)

Project No.9 Wadi Dahr Road



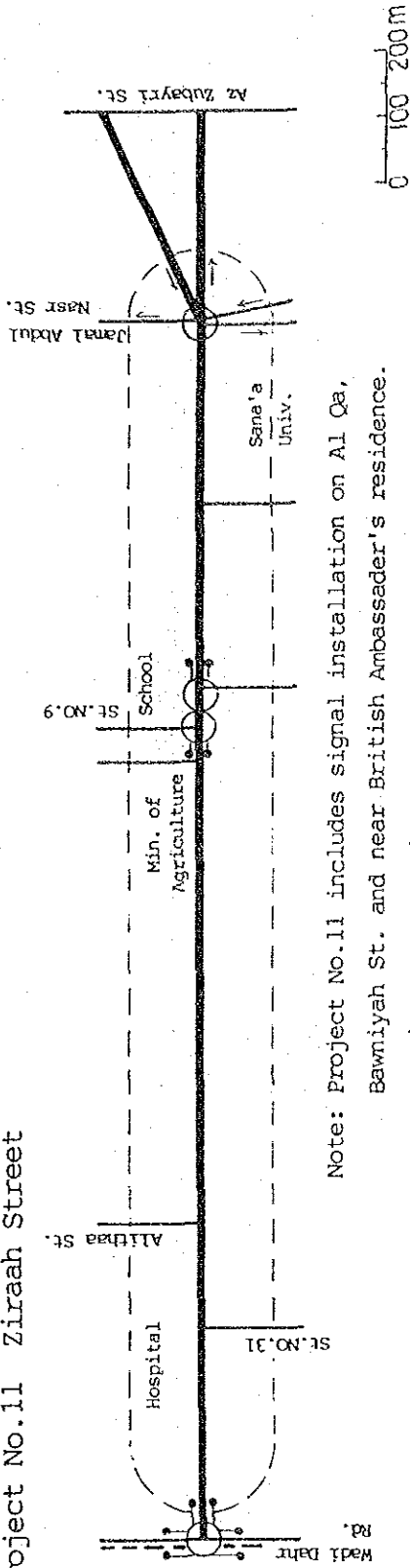
LEGEND	
	Improvement Intersection
	Traffic Signal (Mono-dial type)
	Traffic Signal (Multi-dial type)
	Guard Fence
	Coordinated Signal Control
	Pedestrian Bridge
	Parking Restriction
	Project Location

Project No.10 Ring Road (West side)



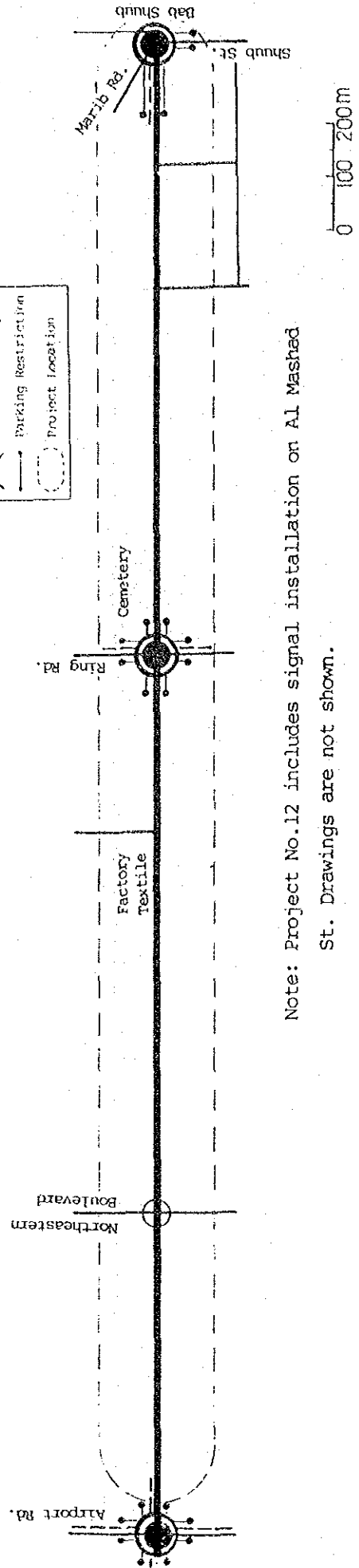
Appendix Fig. 10.2.1 Improvement Plan (6)

Project No.11 Ziraah Street



Note: Project No.11 includes signal installation on Al Qa, Bawiyah St. and near British Ambassador's residence. Drawings are not shown.

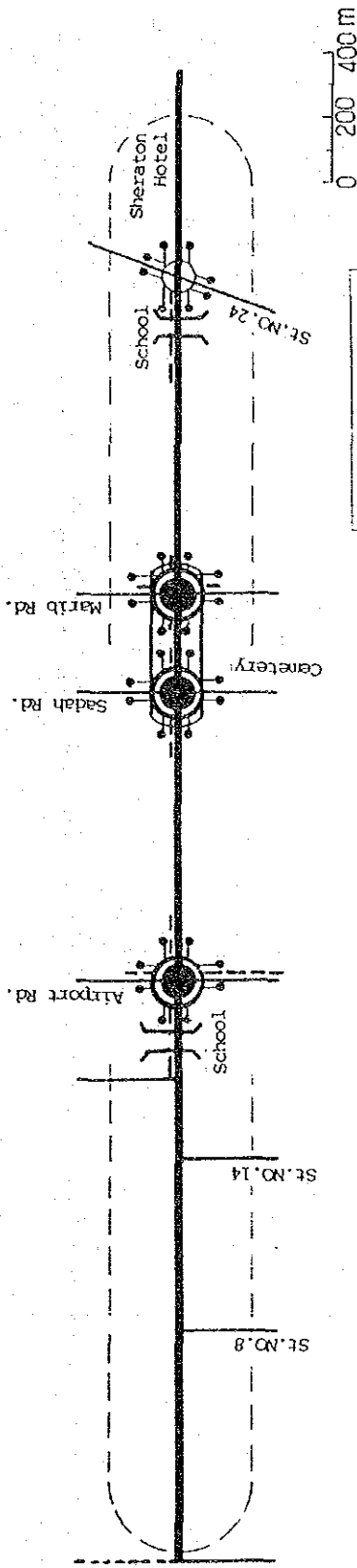
Project No.12 Sadah Road



Note: Project No.12 includes signal installation on Al Mashad St. Drawings are not shown.

Appendix Fig. 10.2.1 Improvement Plan (7)

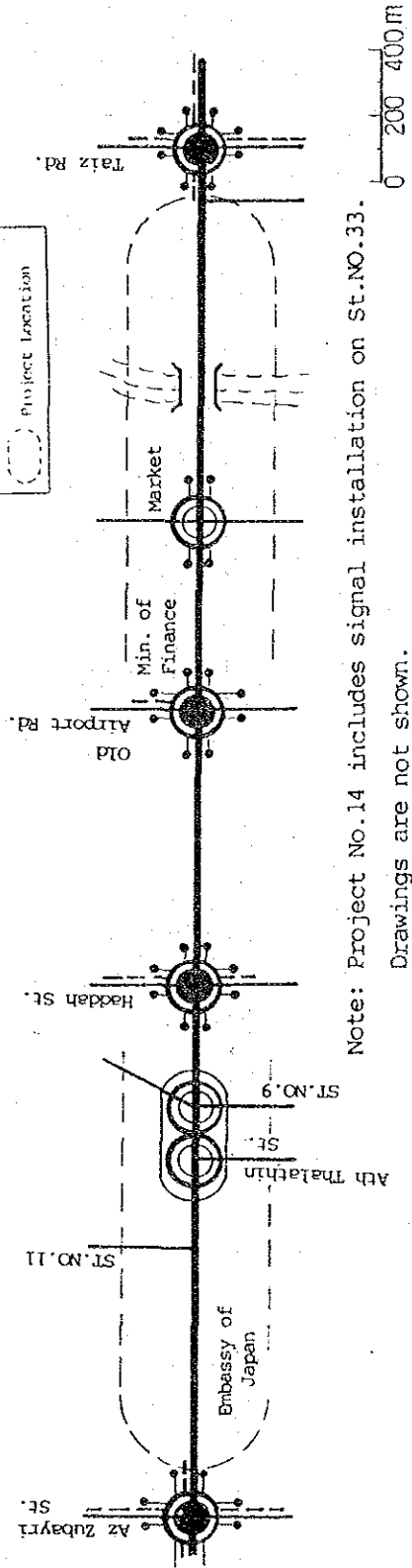
Project No.13 Ring Road (North side)



LEGEND:

○	Improvement
○	Intersection
●	Traffic Signal (Mono-dial type)
●	Traffic Signal (Multi-dial type)
—	Guard Fence
□	Coordinated Signal Control
⌢	Pedestrian Bridge
⌢	Parking Restriction
○	Project Location

Project No.14 Ring Road (South side)

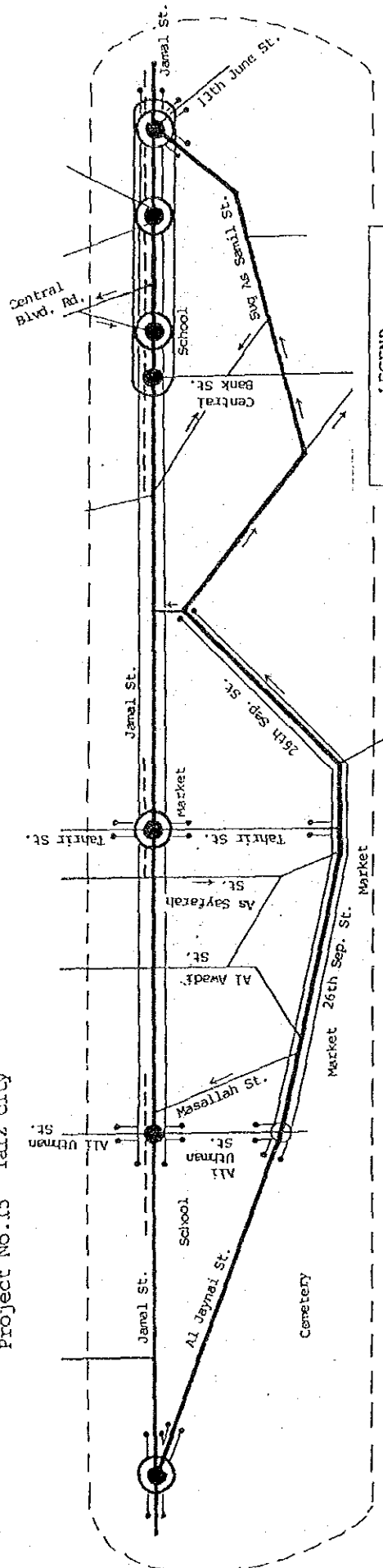


Note: Project No.14 includes signal installation on St.No.33.

Drawings are not shown.

Appendix Fig. 10.2.1 Improvement Plan (8)

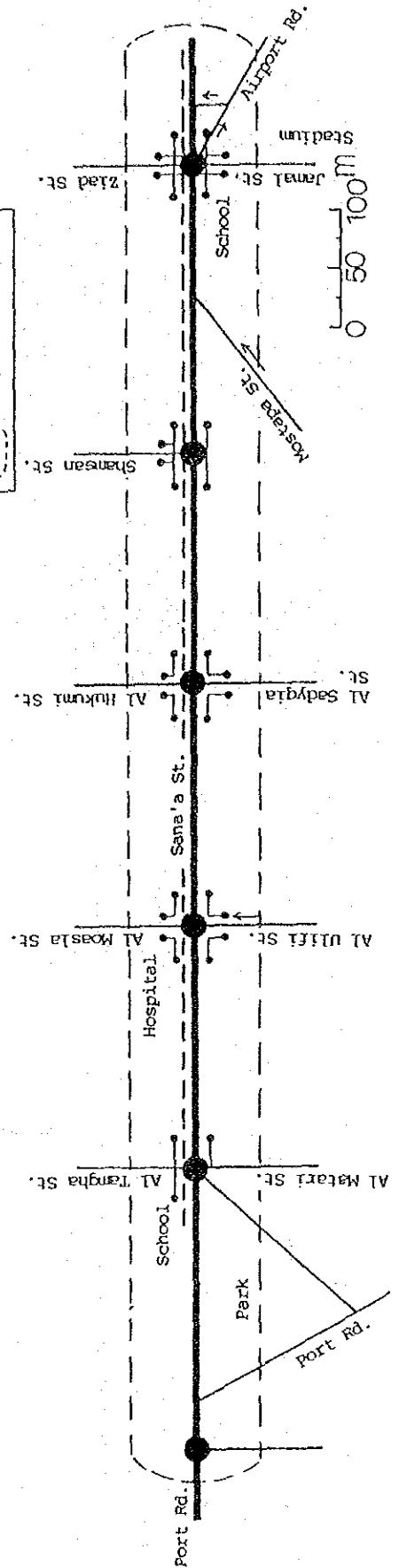
Project No.15 Taiz city



LEGEND

○	Improvement
○	Intersection
●	Traffic Signal (Mono-dial type)
●	Traffic Signal (Multi-dial type)
---	Guard Fence
	Pedestrian Bridge
	Parking Restriction
○	Project Location

Project No.16 Hodeidah city



APPENDIX TO CHAPTER 12

Appendix Table 12.1.1 Project Costs, All Projects

All Project

Location Sanaa, City Taizz City, Hudaidah City

Length 55.0 KM

Contents of cost

1.Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a.Traffic signal	69 places	5013.0	26621.9	8313.6	75498.7	57190.4
b.Improvement of intersection	39 places	2198.9	18243.0	12358.2	39682.3	33797.5
c.Guard Fence	17.8 km	1260.2	3819.2	319.0	16106.2	12606.0
d.Marking		363.0	2011.6	1359.6	5550.9	4898.9
e.Traffic sign	771 places	123.5	813.0	370.7	2017.1	1574.8
f.Reflector		313.0	736.3	31.5	3788.1	3083.3
g.Pedestrian Bridge	11 places	725.5	5758.7	4016.5	13095.6	11353.4
h.Parking	6 places	824.8	8552.9	5804.3	16594.7	13846.1
TOTAL		10849.0	66556.6	32573.4	172334.4	138351.2
2.Indirect Cost		3835.5	25367.6	13018.6	62798.6	50415.2
3.Land			327400.0	163700.0	327400.0	163700.0
4.Engineering Cost		1929.3	9405.3	4530.4	28216.0	23341.0
5.Contingency		2492.1	13021.6	7518.4	37319.4	35460.8
Cost Total		19105.9	441751.2	221340.8	628068.3	407623.4

(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, Total in Sana'a

Total Sanaa projects

Location Sanaa City

Length 48.1 KM

Contents of cost

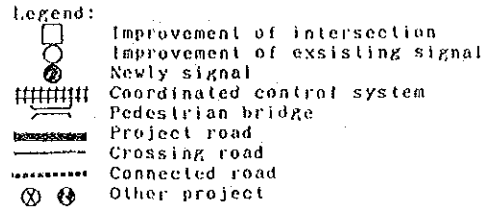
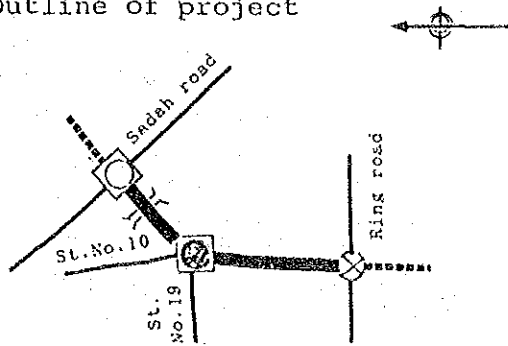
1. Direct cost

		FOREIGN	LOCAL		TOTAL	
		US\$	Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
		a. Traffic signal	54 places	4083.6	21814.2	6924.2
b. Impovement of intersection	32 places	2165.7	17913.7	12120.7	39029.3	33236.3
c. Guard Fence	15.1 km	1068.5	3238.8	270.9	13656.7	10688.8
d. Marking		286.0	1586.4	1071.0	4374.9	3859.5
e. Traffic sign	510 places	78.2	516.1	233.3	1278.6	995.8
f. Reflector		231.1	542.8	22.3	2796.0	2275.5
g. Pedestrian Bridge	11 places	752.5	5758.7	4016.5	13095.6	11353.4
h. Parking	3 places	645.6	7003.9	4825.4	13298.5	11120.0
TOTAL		9311.2	58374.6	29484.3	149158.8	120268.5
2. Indirect Cost		3319.7	21956.2	11458.4	54353.5	43825.8
3. Land			152400.0	76200.0	152400.0	76200.0
4. Engineering Cost		1669.8	8140.5	3938.3	24421.5	20219.2
5. Contingency		2145.1	11373.9	6732.1	32288.8	30784.3
Cost Total		16445.9	252245.2	127813.1	412622.6	288160.6

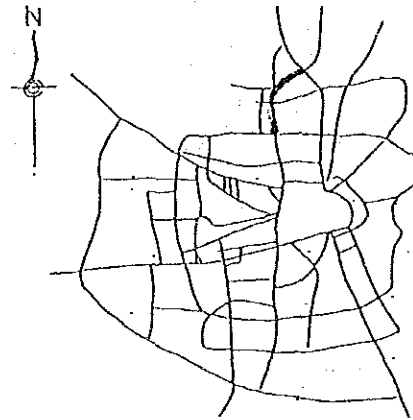
(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 1

Outline of project



Location



Project 1 Airport Road

Location Sadah Road--Ring Road

Length 1.8 KM

Contents of cost

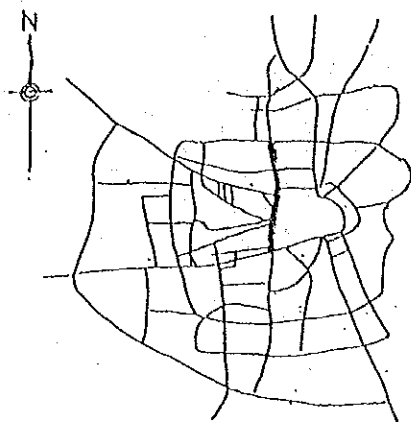
1. Direct cost

	FOREIGN US\$	LOCAL		TOTAL	
		Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a. Traffic signal 2 places	183.7	945.6	272.8	2736.7	2063.9
b. Implovement of intersection 2 places	21.4	211.0	153.5	419.7	362.2
c. Guard Fence 1.4 km	95.8	290.3	24.1	1224.4	958.2
d. Marking	18.9	109.0	75.6	293.3	259.9
e. Traffic sign 24 places	3.7	24.3	11.0	60.4	47.1
f. Reflector	17.0	39.9	1.8	205.6	167.6
g. Pedestrian Bridge 1 place	43.6	333.8	232.8	758.9	657.9
h. Parking	0.0	0.0	0.0	0.0	0.0
TOTAL	384.1	1953.9	771.6	5698.9	4516.6
2. Indirect Cost	126.8	838.9	409.2	2076.7	1645.2
3. Land		2400.0	1200.0	2400.0	1200.0
4. Engineering Cost	63.8	311.0	147.9	933.1	769.9
5. Contingency	86.2	397.4	199.3	1237.9	1165.9
Cost Total	660.9	5901.1	2728.0	12346.5	9172.2

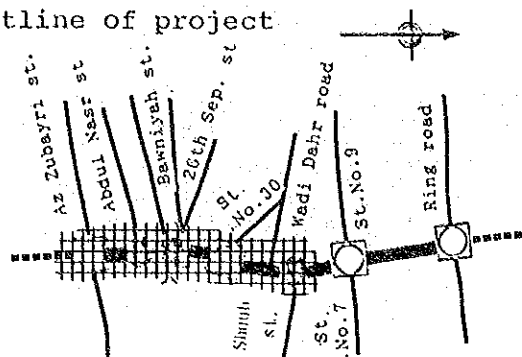
(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 2

Location



Outline of project



Project 2 Al Qiyada Street, Ali Abdul Mughni Street

Location Ring Road--Az Zubayri Street

Length 2.5 KM

Contents of cost

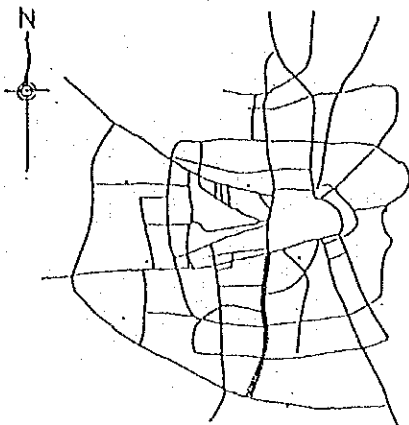
1. Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a. Traffic signal	7 places	627.7	3520.4	1257.5	9640.5	7377.6
b. Impovement of intersection	6 places	40.5	459.7	352.0	854.6	746.9
c. Guard Fence	2.9 km	208.9	633.5	53.7	2670.3	2090.5
d. Marking		33.4	203.6	145.8	529.3	471.5
e. Traffic sign	78 places	11.9	78.9	35.7	194.9	151.7
f. Reflector		39.3	92.5	3.9	475.7	387.1
g. Pedestrian Bridge	1 place	155.8	1192.3	831.6	2711.4	2350.7
h. Parking	1 place	53.5	462.4	292.2	984.0	813.8
TOTAL		1171.0	6643.3	2972.4	18060.6	14389.7
2. Indirect Cost		402.0	2658.5	1324.4	6581.3	5243.6
3. Land			52000.0	26000.0	52000.0	26000.0
4. Engineering Cost		202.2	985.7	471.2	2957.0	2442.5
5. Contingency		266.3	1320.0	715.2	3916.2	3700.8
Cost Total		2041.4	63607.5	31483.3	83515.0	51387.1

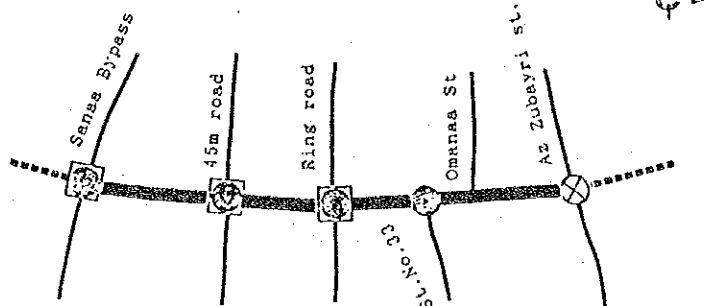
(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 3

Location



Outline of project



Project 3 Old Airport Road

Location Az Zubayri Street--Ring Road

Length 3.3 KM

Contents of cost

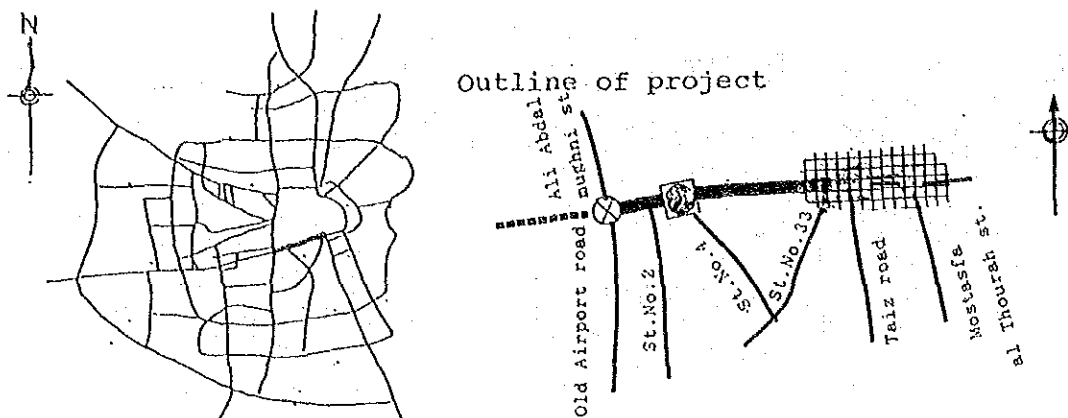
1.Direct cost

		FOREIGN		LOCAL		TOTAL	
		US\$	Y.R.	Financial	Economic	Financial	Economic
a.Traffic signal	4 places	261.1	1346.9	391.4	3892.6	2937.1	
b.Improvement of intersection	2 places	226.7	1828.0	1220.8	4038.3	3431.1	
c.Guard Fence	0.3 km	21.3	64.5	5.3	272.2	213.0	
d.Marking		14.1	78.2	52.6	215.7	190.1	
e.Traffic sign	32 places	4.9	32.4	14.6	80.2	62.4	
f.Reflector		56.1	130.4	4.2	677.4	551.2	
g.Pedestrian Bridge		0.0	0.0	0.0	0.0	0.0	
h.Parking		0.0	0.0	0.0	0.0	0.0	
TOTAL		584.2	3480.4	1688.9	9176.4	7384.9	
2.Indirect Cost		204.2	1350.8	699.8	3343.9	2691.0	
3.Land			0.0	0.0	0.0	0.0	
4.Engineering Cost		102.7	500.8	241.8	1502.4	1243.4	
5.Contingency		133.7	684.8	394.6	1988.1	1893.4	
Cost Total		1024.8	6016.8	3025.1	16010.8	13017.2	

(Unit:in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 4

Location



Project 4 Az Znbayri Street (Old Airport Road-Bad AL Yemen)

Location Ali Abdnl Mughni Street--Taiz Road

Length 1.1 KM

Contents of cost

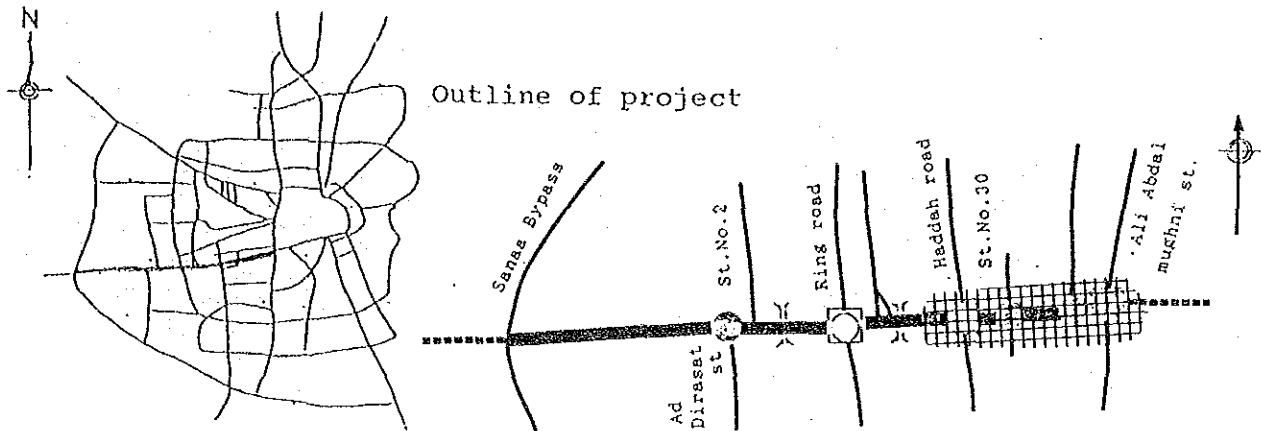
1. Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a. Traffic signal	2 places	181.0	942.3	276.1	2707.1	2040.9
b. Improvement of intersection	2 places	60.3	532.2	372.1	1120.1	960.0
c. Guard Fence	0.9 km	63.9	193.5	16.1	816.5	639.1
d. Marking		11.2	61.1	41.1	170.3	150.3
e. Traffic sign	18 places	2.8	18.2	8.2	45.5	35.5
f. Reflector		10.9	25.7	1.1	132.0	107.4
g. Pedestrian Bridge	1 place	155.8	1192.3	831.6	2711.4	2350.7
h. Parking		0.0	0.0	0.0	0.0	0.0
TOTAL		485.9	2965.3	1546.3	7702.8	6283.8
2. Indirect Cost		171.4	1133.9	618.3	2806.9	2289.8
3. Land			0.0	0.0	0.0	0.0
4. Engineering Cost		86.2	420.4	205.8	1261.2	1046.5
5. Contingency		111.5	580.7	355.6	1668.2	1606.2
Cost Total		855.1	5100.3	2725.9	13439.1	11063.2

(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 5

Location



Project 5 Az Zubayri Street (60m Road-Old Airport Road)

Location 60m Road--Ring Road--Ali Abdal Mughni Street

Length 4.1 KM

Contents of cost

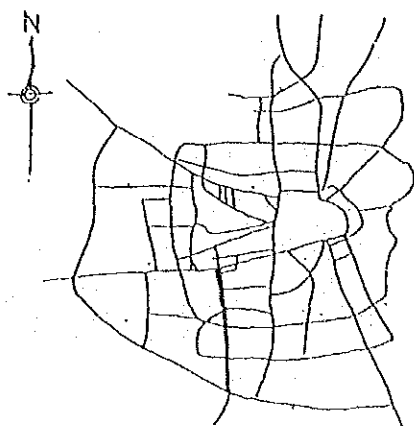
1.Direct cost

		FOREIGN		LOCAL		TOTAL	
		US\$	Y.R.	Financial	Economic	Financial	Economic
a.Traffic signal	5 places	437.8	2487.4	912.3	6756.0	5180.9	
b.Improvement of intersection	2 places	27.1	271.2	194.7	535.4	456.9	
c.Guard Fence	2.3 km	162.7	493.9	42.2	2080.2	1626.5	
d.Marking		30.2	159.1	103.6	453.6	398.1	
e.Traffic sign	62 places	9.5	62.7	28.4	155.3	121.0	
f.Reflector		10.5	25.0	1.3	127.4	103.7	
g.Pedestrian Bridge	1 place	62.3	476.9	352.6	1084.3	940.0	
h.Parking	1 place	171.1	1725.5	1171.6	3393.7	2839.2	
TOTAL		911.2	5701.7	2786.7	14585.9	11670.9	
2.Indirect Cost		324.6	2147.0	1087.7	5315.1	4252.9	
3.Land			88400.0	44200.0	88400.0	44200.0	
4.Engineering Cost		163.3	796.0	382.2	2388.1	1974.3	
5.Contingency		209.9	1111.3	638.5	3157.6	2991.6	
Cost Total		1609.0	98156.1	49095.1	113846.7	64782.7	

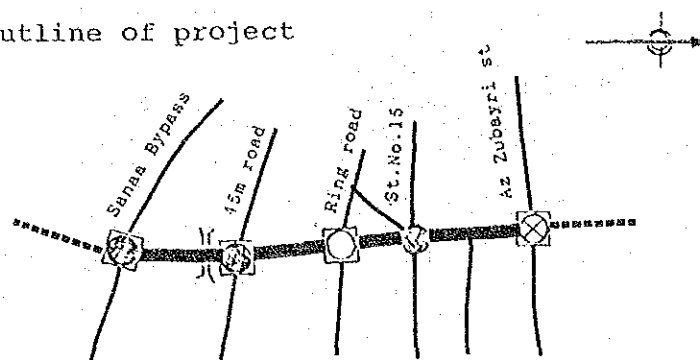
(Unit:in 1000US\$ and 1000Y.R. at 1966 prices)

Appendix Table 12.1.1 Project Costs, No. 6

Location



Outline of project



Project 6 Haddah Street

Location Az Zubayri Street--Ring Road--45m Road

Length 2.8 KM

Contents of cost

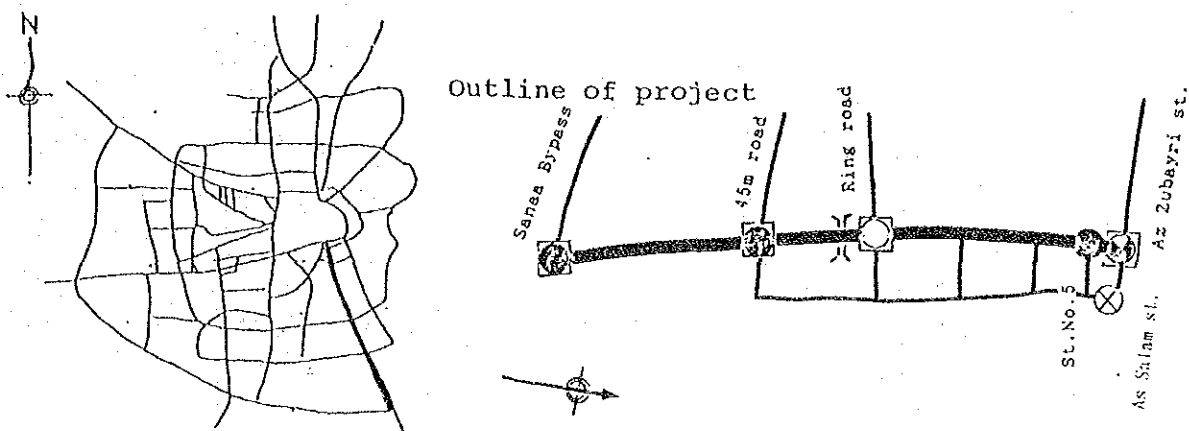
1. Direct cost

		FOREIGN	LOCAL		TOTAL	
			Financial	Economic	Financial	Economic
		US\$	Y.R.	Y.R.	Y.R.	Y.R.
a. Traffic signal	4 places	236.1	1236.3	368.8	3538.3	2670.8
b. Improvement of intersection	3 places	487.4	3921.7	2631.2	8673.9	7383.4
c. Guard Fence	1.0 km	73.8	223.6	18.6	943.2	738.1
d. Marking		31.3	191.8	137.0	497.0	442.2
e. Traffic sign	30 places	4.6	30.4	13.7	75.3	58.6
f. Reflector		20.7	49.0	2.3	250.8	204.1
g. Pedestrian Bridge	1 place	42.1	321.9	224.5	732.4	635.0
h. Parking		0.0	0.0	0.0	0.0	0.0
TOTAL		896.0	5974.7	3396.1	14710.7	12132.1
2. Indirect Cost		327.4	2165.4	1228.7	5360.6	4420.9
3. Land			2400.0	1200.0	2400.0	1200.0
4. Engineering Cost		164.7	602.9	397.3	2408.6	2003.0
5. Contingency		208.2	1151.0	753.3	3181.1	3087.9
Cost Total		1596.3	12494.0	6975.4	28061.0	22539.4

(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 7

Location



Project 7 Taiz Road

Location Az Zubayri Street--Ring Road--60m Road

Length 4.0 KM

Contents of cost

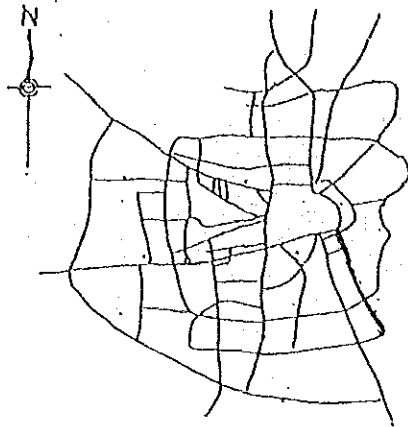
1. Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a. Traffic signal	4 places	294.8	1523.0	443.2	4397.3	3317.5
b. Impovement of intersection	3 places	475.6	3751.6	2475.4	8388.7	7112.5
c. Guard Fence	2.5 km	176.1	533.2	44.2	2250.2	1761.2
d. Marking		32.1	179.7	122.0	492.7	435.0
e. Traffic sign	44 places	6.7	44.5	20.1	109.8	85.4
f. Reflector		23.6	55.4	2.4	285.5	232.5
g. Pedestrian Bridge	1 place	54.5	417.3	291.1	948.7	822.5
h. Parking		0.0	0.0	0.0	0.0	0.0
TOTAL		1063.4	6504.7	3398.4	16872.9	13766.6
2. Indirect Cost		375.5	2483.7	1355.1	6148.5	5016.5
3. Land			0.0	0.0	0.0	0.0
4. Engineering Cost		188.9	920.9	450.8	2762.6	2292.5
5. Contingency		244.2	1273.3	780.6	3654.0	3518.4
Cost Total		1872.0	11182.6	5985.0	29437.9	24236.9

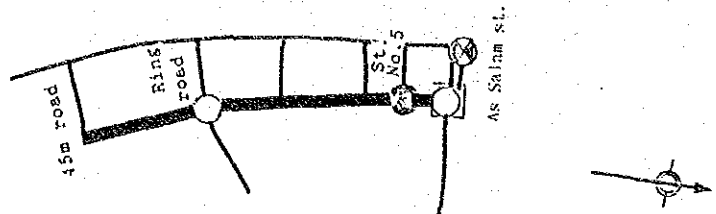
(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 8

Location



Outline of project



Project 8 Mostasfa Al Thouran Street

Location Wadi Al Casr Street--Ring Road--45m Road

Length 2.5 KM

Contents of cost

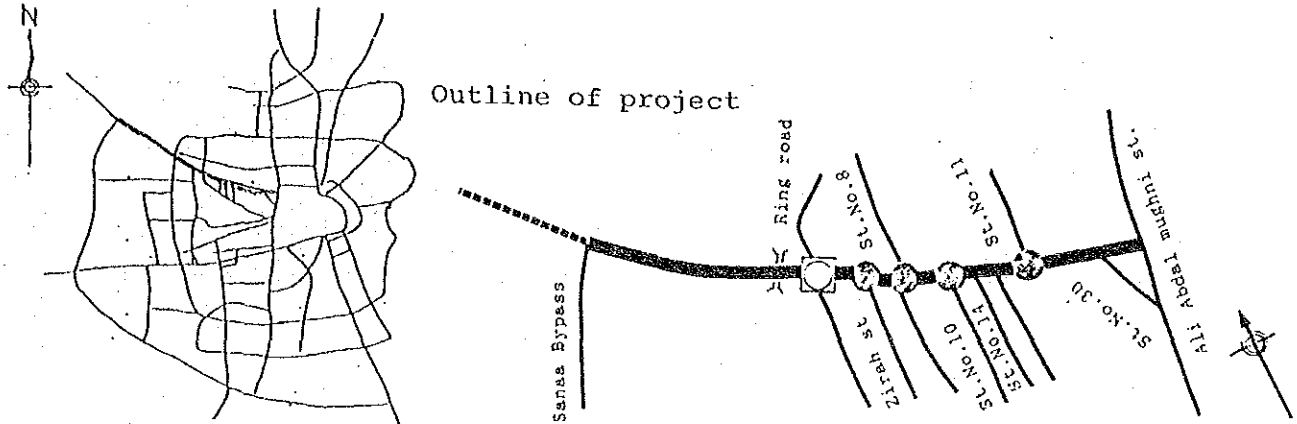
1.Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a.Traffic signal	3 places	242.0	1343.7	471.4	3703.2	2830.9
b.Improvement of intersection	2 places	348.0	2720.3	1786.8	6113.3	5179.8
c.Guard Fence	0.4 km	27.6	83.8	6.9	352.9	276.0
d.Marking		15.8	81.3	52.4	235.3	206.4
e.Traffic sign	22 places	3.4	22.3	10.1	55.5	43.3
f.Reflector		14.2	33.5	1.5	172.0	140.0
g.Pedestrian Bridge		0.0	0.0	0.0	0.0	0.0
h.Parking		0.0	0.0	0.0	0.0	0.0
TOTAL		651.0	4284.9	2329.1	10632.2	8676.4
2.Indirect Cost		236.6	1565.1	854.5	3874.4	3161.7
3.Land			0.0	0.0	0.0	0.0
4.Engineering Cost		119.0	580.3	284.1	1740.8	1444.6
5.Contingency		151.0	827.4	520.2	2299.7	2213.2
Cost Total		1157.7	7257.6	3987.9	18547.0	15275.0

(Unit:in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 9

Location



Project 9 Wadi Dahr Road

Location Ring Road--Al Qiyada Street.Ali Abdul Mughni Street

Length 3.6 KM

Contents of cost

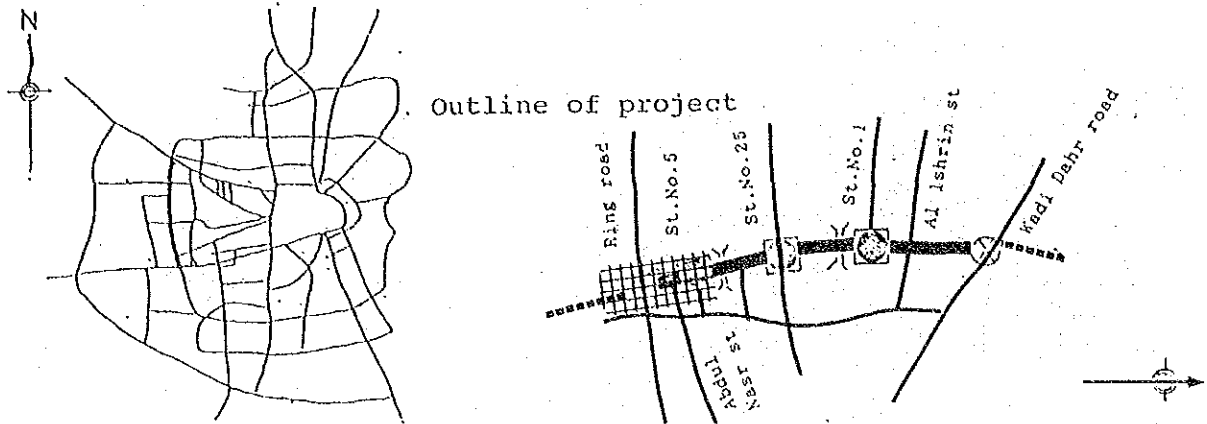
1.Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a.Traffic signal	5 places	317.3	1638.4	471.9	4732.1	3565.6
b.Improvement of intersection	1 places	18.8	186.5	134.6	369.8	317.9
c.Guard Fence	1.1 km	73.8	223.6	18.6	943.2	736.1
d.Marking		14.2	74.9	48.8	213.3	187.2
e.Traffic sign	30 places	4.6	30.4	13.7	75.3	58.6
f.Reflector		4.6	10.9	0.7	55.8	45.6
g.Pedestrian Bridge	1 place	42.1	321.9	224.5	732.4	635.0
h.Parking		0.0	0.0	0.0	0.0	0.0
TOTAL		475.4	2486.6	912.8	7121.6	5548.0
2.Indirect Cost		158.5	1048.3	476.3	2595.2	2021.7
3.Land			0.0	0.0	0.0	0.0
4.Engineering Cost		79.7	388.7	181.7	1166.0	959.0
5.Contingency		107.0	502.6	235.6	1546.3	1435.9
Cost Total		820.7	4426.2	1806.3	12429.2	9807.9

(Unit:in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 10

Location



Project 10 Ring Road (Wadi Dahr Road-Az Zubayri Street)

Location Wadi Dahr Road-Az Zubayri Street

Length 2.3 KM

Contents of cost

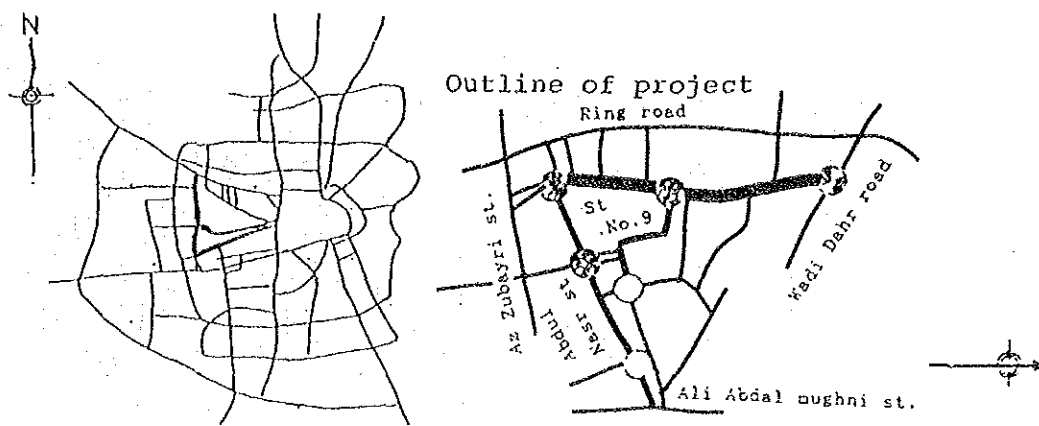
1.Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a.Traffic signal	3 places	265.5	1412.5	447.0	3981.6	3016.1
b.Improvement of intersection	3 places	191.0	1761.0	1287.2	3623.3	3149.5
c.Guard Fence	0.6 km	36.9	111.8	9.3	471.6	369.1
d.Marking		13.4	99.8	66.6	279.2	246.0
e.Traffic sign	54 places	8.3	54.6	24.7	135.5	105.6
f.Reflector		11.1	25.9	0.9	134.1	109.1
g.Pedestrian Bridge	2 places	71.7	543.5	332.5	1247.6	1081.6
h.Parking (Secondary Road Pavement)	5.6 km	421.0	4316.0	3361.6	8920.8	7466.4
TOTAL		1021.9	8830.1	5579.8	18793.6	15543.3
2.Indirect Cost		418.3	2766.4	1585.8	6848.4	5664.0
3.Land			4800.0	2400.0	4800.0	2400.0
4.Engineering Cost		210.4	1025.7	509.0	3077.0	2560.3
5.Contingency		247.6	1631.7	1151.2	4045.6	3927.2
Cost Total		1898.2	19053.9	11225.7	37564.7	29732.8

(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 11

Location



Project 11 Ziraah Street

Location Wadi Dahr Road--Jamal Abdnl Nasi Street--Az Zubayri Street

Length 1.7 KM

Contents of cost

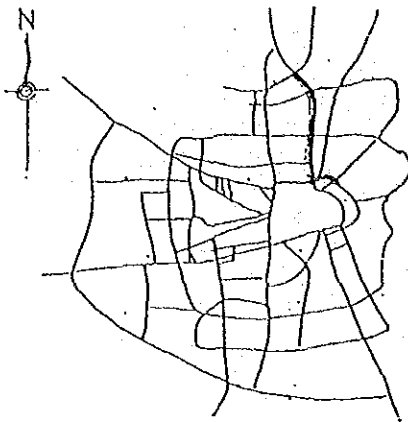
1. Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a. Traffic signal	5 places	401.1	2073.2	602.3	5983.9	4513.0
b. Improvement of intersection		0.0	0.0	0.0	0.0	0.0
c. Guard Fence		0.0	0.0	0.0	0.0	0.0
d. Marking		4.4	20.4	12.0	63.3	54.9
e. Traffic sign	22 places	3.4	22.3	10.1	55.5	43.3
f. Reflector		0.0	0.0	0.0	0.0	0.0
g. Pedestrian Bridge		0.0	0.0	0.0	0.0	0.0
h. Parking		0.0	0.0	0.0	0.0	0.0
TOTAL		408.9	2115.9	624.4	6102.7	4611.2
2. Indirect Cost		135.8	898.3	356.0	2223.8	1680.3
3. Land			0.0	0.0	0.0	0.0
4. Engineering Cost		68.3	333.1	151.0	999.2	817.1
5. Contingency		92.0	428.7	169.7	1325.3	1200.8
Cost Total		705.0	3776.0	1301.1	10650.9	8174.9

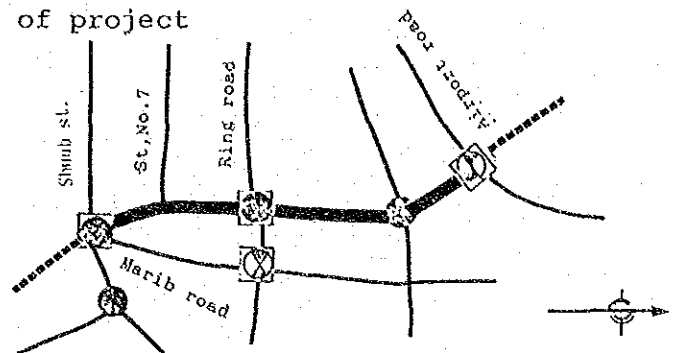
(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 12

Location



Outline of project



Project 12 Sadah Road

Location Airport Road--Ring Road--Marib Road

Length 2.7 KM

Contents of cost

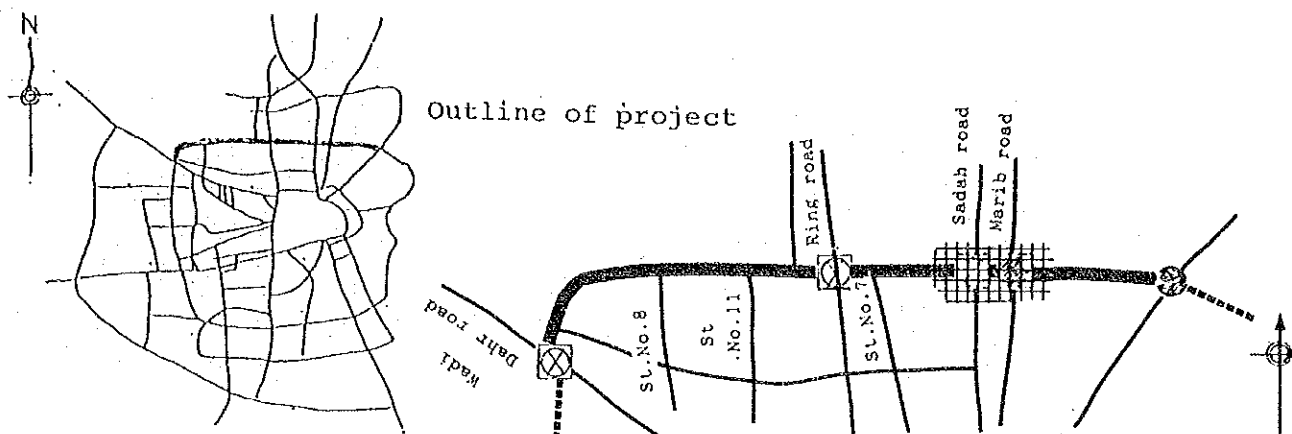
1. Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.
a. Traffic signal	4 places	227.9	1074.5	232.0	3296.5	2454.0
b. Impovement of intersection	2 places	121.9	905.0	516.7	2093.5	1705.2
c. Guard Fence	1.0 km	73.8	223.6	18.5	943.1	738.0
d. Marking		18.3	104.8	72.1	283.2	250.5
e. Traffic sign	28 places	4.3	28.3	12.8	70.2	54.7
f. Reflector		11.2	26.4	1.0	135.6	110.2
g. Pedestrian Bridge		0.0	0.0	0.0	0.0	0.0
h. Parking		0.0	0.0	0.0	0.0	0.0
TOTAL		457.4	2362.6	853.1	6822.3	5312.8
2. Indirect Cost		151.8	1004.2	455.5	2486.0	1936.0
3. Land			0.0	0.0	0.0	0.0
4. Engineering Cost		76.4	372.3	174.0	1117.0	918.6
5. Contingency		102.8	478.8	222.4	1481.6	1375.5
Cost Total		788.5	4218.0	1705.0	11906.8	9392.4

(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 13

Location



Project 13 Ring Road (North-Side)

Location Airport Road--Marib Road

Length 4.5 KM

Contents of cost

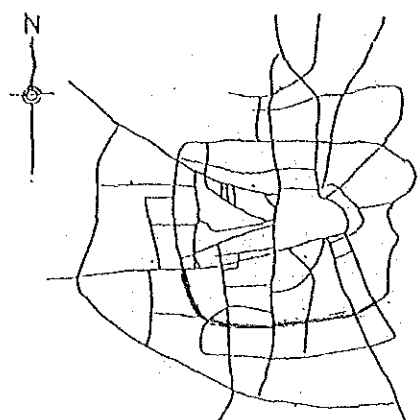
1. Direct cost

		FOREIGN		LOCAL		TOTAL	
		US\$	Financial Y.R.	Economic Y.R.	Financial Y.R.	Economic Y.R.	
a. Traffic signal	2 places	110.1	704.1	312.8	1777.6	1386.3	
b. Implovement of intersection	1 places	1.4	13.7	9.8	27.4	23.4	
c. Guard Fence	0.2 km	14.3	43.1	3.5	182.5	142.9	
d. Marking		21.5	100.8	59.7	310.4	269.3	
e. Traffic sign	42 places	6.4	42.5	19.2	104.9	81.6	
f. Reflector		0.4	1.1	0.0	5.0	3.9	
g. Pedestrian Bridge	2 places	124.6	953.8	665.3	2168.7	1680.2	
h. Parking		0.0	0.0	0.0	0.0	0.0	
TOTAL		278.7	1859.1	1070.3	4576.4	3787.6	
2. Indirect Cost		101.9	673.6	387.1	1667.6	1380.2	
3. Land			2400.0	1200.0	2400.0	1200.0	
4. Engineering Cost		51.2	249.8	124.0	749.3	623.6	
5. Contingency		64.8	358.1	237.2	989.6	963.4	
Cost Total		496.6	5540.6	3018.7	10383.0	7860.1	

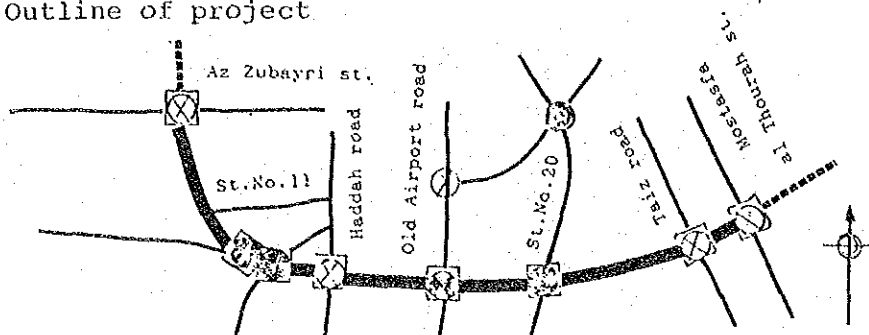
(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 14

Location



Outline of project



Project 14 Ring Road (Az Zubayri Street-Haddah Street-Taiz Road)

Location Az Zubayri Street--Haddah Street--Old Airprot Road--Taiz Road

Length 4.5 KM

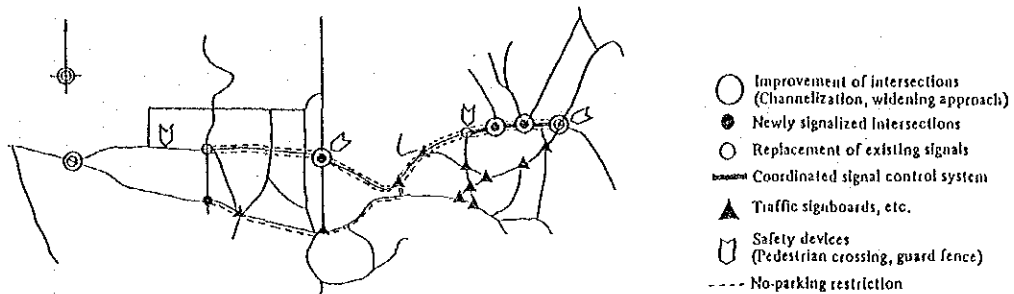
Contents of cost

1. Direct cost

		FOREIGN	LOCAL		TOTAL		
			US\$	Financial	Economic	Financial	Economic
				Y.R.	Y.R.	Y.R.	Y.R.
a. Traffic signal	4 places	299.5	1565.9	464.7	4486.0	3384.8	
b. Impovement of intersection	3 places	145.6	1351.8	985.9	2771.4	2405.5	
c. Guard Fence	0.5 km	39.6	120.4	9.9	506.5	396.0	
d. Marking		22.2	121.9	81.7	338.3	298.1	
e. Traffic sign	24 places	3.7	24.3	11.0	60.4	47.1	
f. Reflector		11.5	27.1	1.2	139.2	113.3	
g. Pedestrian Bridge		0.0	0.0	0.0	0.0	0.0	
h. Parking		0.0	0.0	0.0	0.0	0.0	
TOTAL		522.1	3211.4	1554.4	8301.9	6644.9	
2. Indirect Cost		184.8	1222.0	619.9	3025.2	2421.4	
3. Land			0.0	0.0	0.0	0.0	
4. Engineering Cost		92.9	453.1	217.6	1359.2	1123.8	
5. Contingency		120.0	628.0	358.8	1797.7	1704.0	
Cost Total		919.8	5514.5	2750.7	14484.0	11718.5	

(Unit: In 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 15



Project 15 Taizz Project

Location Taizz City

Length 3.2 KM

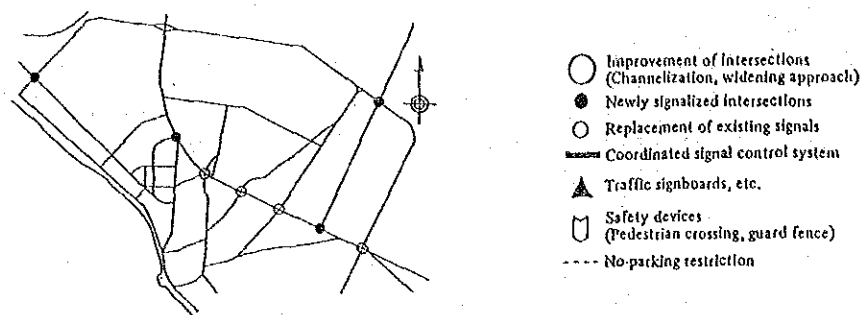
Contents of cost

1. Direct cost

		FOREIGN		LOCAL		TOTAL	
		US\$	Financial		Economic		
			Y.R.	Y.R.	Y.R.	Y.R.	
a. Traffic signal	7 places	423.1	2223.8	674.5	6349.0	4799.7	
b. Improvement of intersection	5 places	33.2	329.3	237.5	653.0	561.2	
c. Guard Fence	1.5 km	104.4	316.0	26.2	1333.9	1044.1	
d. Marking		38.7	174.7	102.1	552.0	479.4	
e. Traffic sign	159 places	26.7	179.0	82.6	439.3	342.9	
f. Reflector		44.1	104.4	5.3	534.4	435.3	
g. Pedestrian Bridge		0.0	0.0	0.0	0.0	0.0	
h. Parking	3 places	179.2	1549.0	978.9	3296.2	2726.1	
TOTAL		849.4	4876.2	2107.1	13157.9	10388.8	
2. Indirect Cost		292.8	1936.8	930.4	4794.7	3785.7	
3. Land			17500.0	87500.0	17500.0	87500.0	
4. Engineering Cost		147.3	718.1	340.2	2154.3	1776.4	
5. Contingency		193.4	966.6	506.7	2852.5	2675.5	
Cost Total		1483.0	183497.7	91384.3	197959.4	105843.4	

(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)

Appendix Table 12.1.1 Project Costs, No. 16



Project 16 Hudaidah City

Location Hudaidah

Length 3.7 KM

Contents of cost

1. Direct cost

		FOREIGN US\$	LOCAL		TOTAL	
			Financial	Economic	Financial	Economic
			Y.R.	Y.R.	Y.R.	Y.R.
a. Traffic signal	8 places	506.3	2583.9	714.9	7520.3	5651.3
b. Improvement of intersection		0.0	0.0	0.0	0.0	0.0
c. Guard Fence	1.2 km	87.3	264.4	21.9	1115.6	873.1
d. Marking		38.3	250.5	186.5	623.9	559.9
e. Traffic sign	102 places	18.6	117.9	54.8	299.3	236.2
f. Reflector		37.8	89.1	3.9	457.7	372.5
g. Pedestrian Bridge		0.0	0.0	0.0	0.0	0.0
h. Parking		0.0	0.0	0.0	0.0	0.0
TOTAL		688.4	3305.8	982.0	10017.7	7693.9
2. Indirect Cost		223.0	1474.6	629.8	3650.4	2803.7
3. Land			0.0	0.0	0.0	0.0
4. Engineering Cost		112.1	546.7	251.9	1460.2	1345.4
5. Contingency		153.5	681.1	279.6	2178.0	2001.0
Cost Total		1177.0	6008.3	2143.3	17486.3	13619.4

(Unit: in 1000US\$ and 1000Y.R. at 1988 prices)