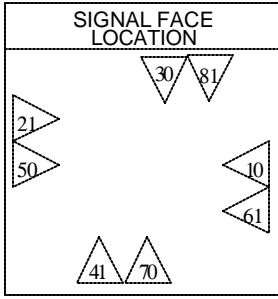


SIGNAL PHASING AND LAYOUT EXAMPLES

The following examples show typical signal phasing configurations and intersection layouts. While there are a number of examples shown, these are not all-encompassing. There are many more variations possible. Each intersection needs to be evaluated on its own merits. Every aspect of the intersection layout and phasing needs to be reviewed using the guidelines in this manual, the MUTCD, and sound engineering judgement to assure that it is appropriate for the actual conditions.

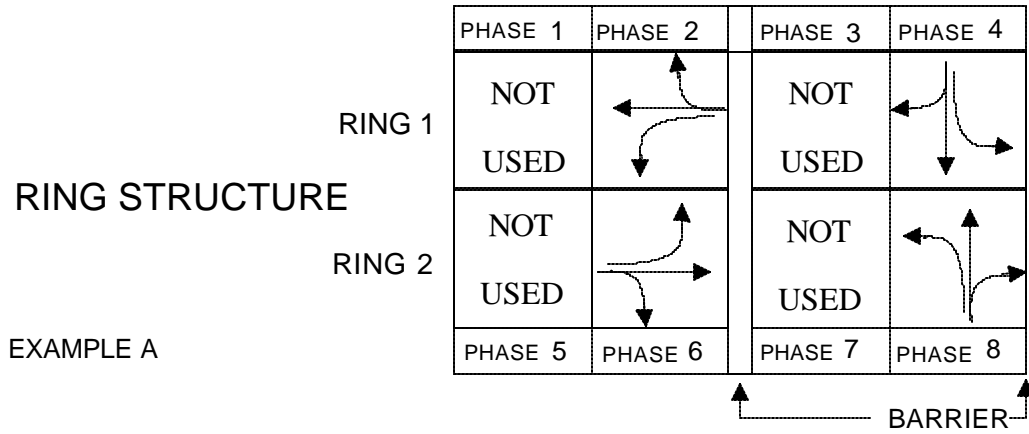
This section contains examples of actuated phasing configurations. While these examples are based on standard signal controller operations, variations between brands and types of equipment may require a different phasing setup than that shown.

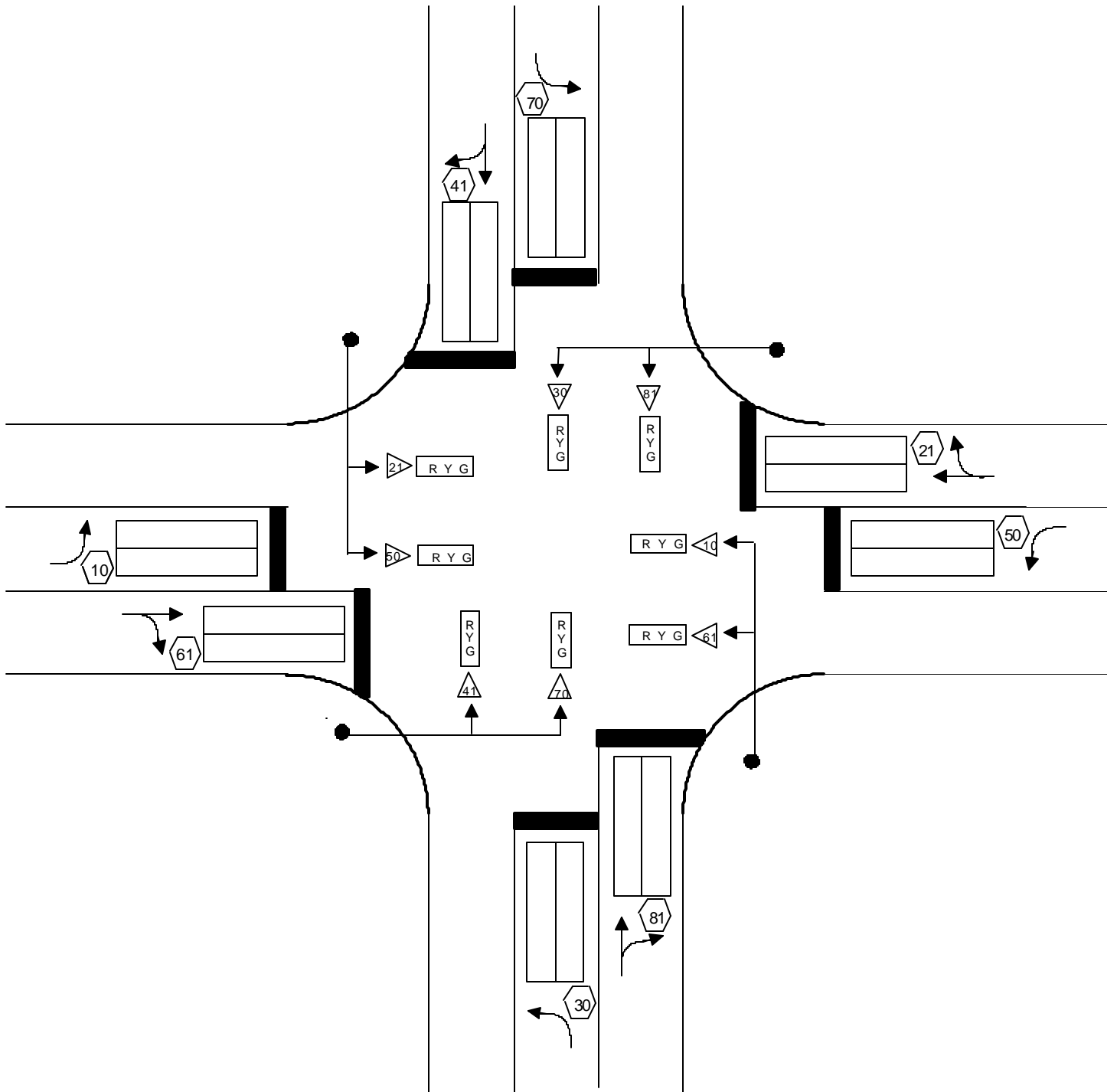
The intersection layouts are basic and are only intended to show basic lane configurations and possible signal indications for that layout. These are not scaled drawings and only show general locations of the equipment and features directly related to the phasing examples. There are numerous other features and pieces of equipment of signalized intersections that are not shown on these drawings. See the Project Development Manual for more complete information on signal and intersection design.



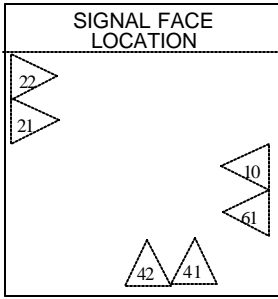
		TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS							
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
	FACE NUMBERS		21 50		41 70		61 10		81 30
SIGNAL INDICATIONS	R		R R		R R		R R		R R
	Y		Y Y		Y Y		Y Y		Y Y
	G		G G		G G		G G		G G
DETECTOR ASSIGNMENTS			21 50		41 70		61 10		81 30

		TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS							
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
	FACE NUMBERS								
SIGNAL INDICATIONS	R								
	Y								
	G								
OVERLAP PARENT PHASES									
DETECTOR ASSIGNMENT (PEDS ONLY)									





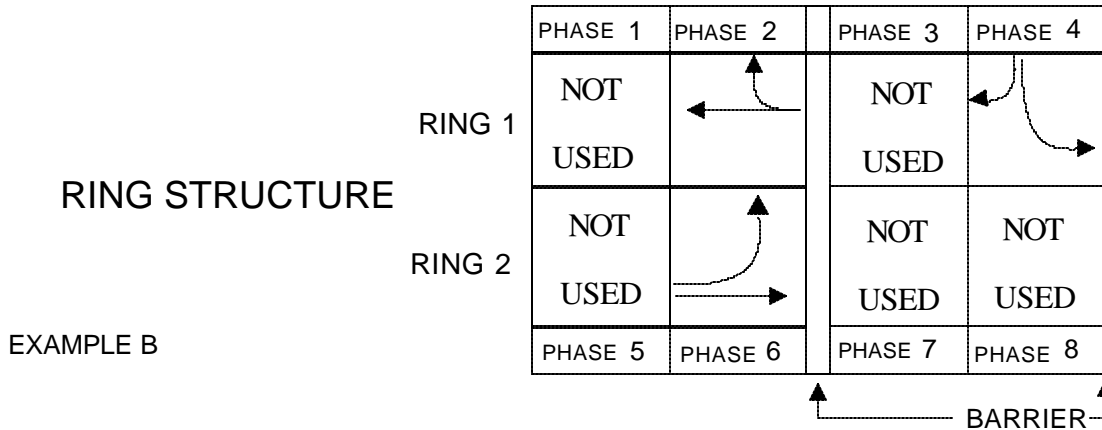
EXAMPLE A

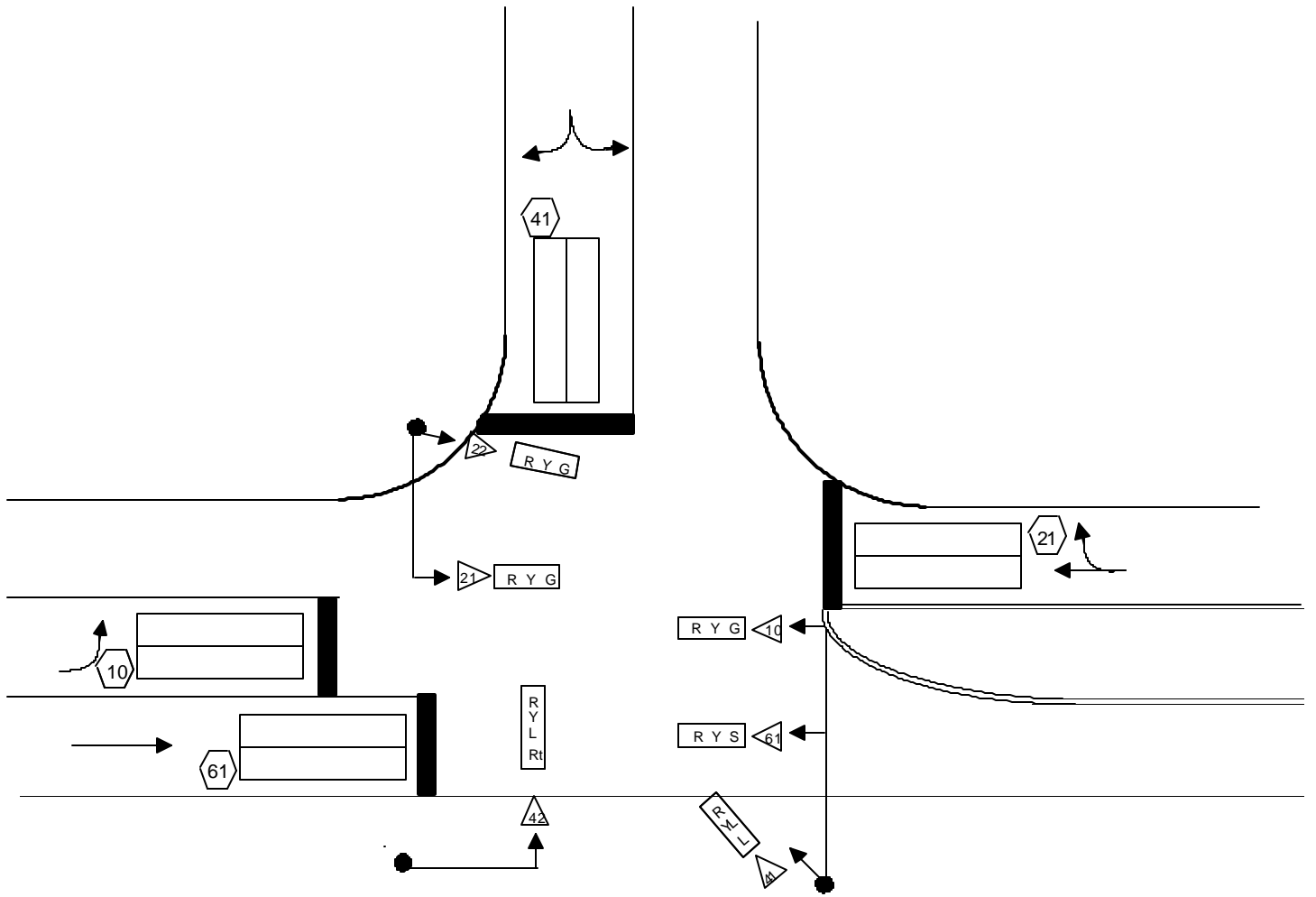


TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
		NOT USED	←	←	←	→	→	NOT USED	NOT USED
FACE NUMBERS	LOAD SWITCH CONTROL		21		41 42		61 10		
			22						
SIGNAL INDICATIONS	R		R		R R		R R		
	Y		Y		YL Y		Y Y		
	G		G		L L Rt		S G		
DETECTOR ASSIGNMENTS			21		41		61 10		

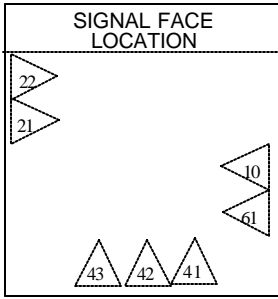
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									

		PED ϕ OVERLAP A	PED ϕ OVERLAP	PED ϕ OVERLAP	PED ϕ OVERLAP					
FACE NUMBERS	LOAD SWITCH CONTROL									
SIGNAL INDICATIONS	R									
	Y									
	G									
OVERLAP PARENT PHASES										
DETECTOR ASSIGNMENT (PEDS ONLY)										





EXAMPLE B



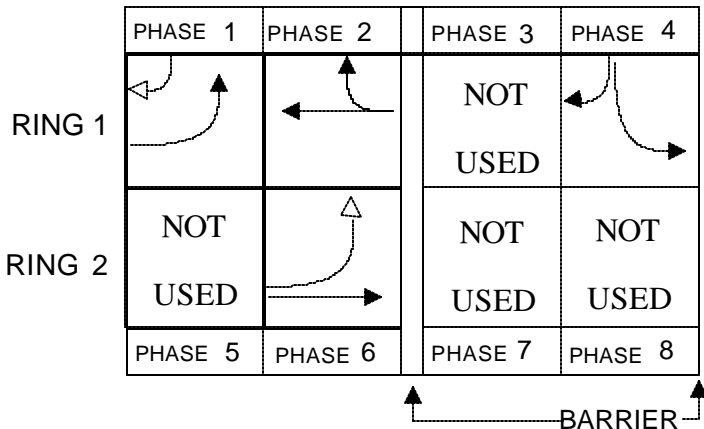
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS

		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
				NOT USED		NOT USED		NOT USED	NOT USED
FACE NUMBERS	LOAD SWITCH CONTROL	10	21		41 42		61 10		
			22						
SIGNAL INDICATIONS	R		R		R R		R R		
	Y	YL	Y		YL YL		Y Y		
	G	L	G		L L		S G		
DETECTOR ASSIGNMENTS		10	21		41 70		61		

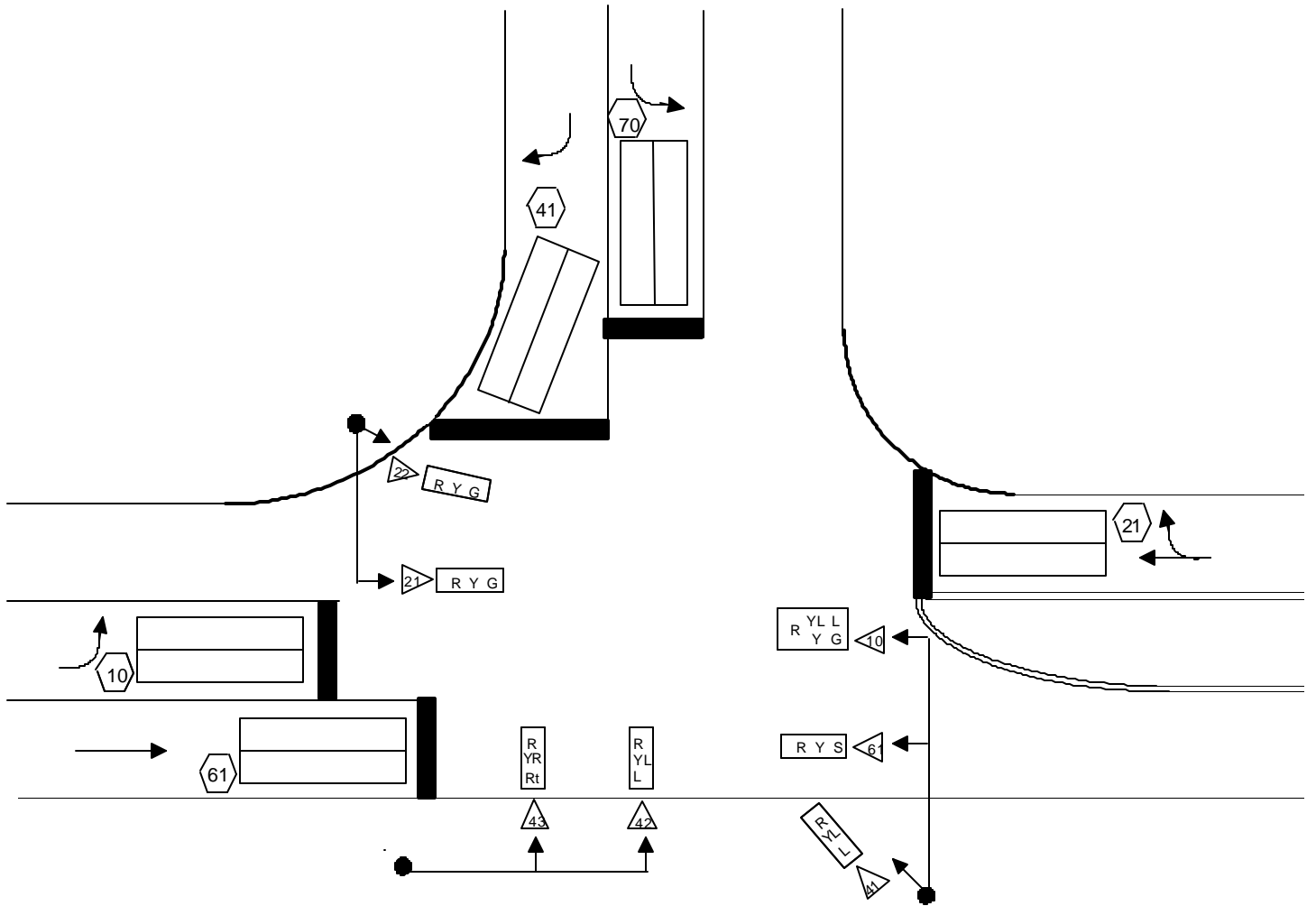
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS

		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
		PED ϕ	PED ϕ	PED ϕ	PED ϕ				
		OVERLAP A	OVERLAP	OVERLAP	OVERLAP				
FACE NUMBERS	LOAD SWITCH CONTROL	43							
SIGNAL INDICATIONS	R	R							
	Y	YRt							
	G	Rt							
OVERLAP PARENT PHASES		1 4							
DETECTOR ASSIGNMENT (PEDS ONLY)									

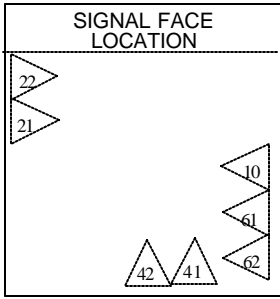
RING STRUCTURE



EXAMPLE C



EXAMPLE C



TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
		←		NOT USED		→		NOT USED	
		←		NOT USED		→		NOT USED	
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL	10	21		41		61		
			22		42		62		
SIGNAL INDICATIONS	R	R	R		R		R		
	Y	YL	Y		YL		Y		
	G	L	S		L		S		
DETECTOR ASSIGNMENTS		10	21 22		41		61 62		

TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
		←		NOT USED		→		NOT USED	
		←		NOT USED		→		NOT USED	
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL								
SIGNAL INDICATIONS	R								
	Y								
	G								
DETECTOR ASSIGNMENTS									

EXAMPLE C

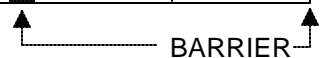
OVERLAP PARENT PHASES		PED Φ OVERLAP A	PED Φ OVERLAP	PED Φ OVERLAP	PED Φ OVERLAP
DETECTOR ASSIGNMENT (PEDS ONLY)					

RING STRUCTURE

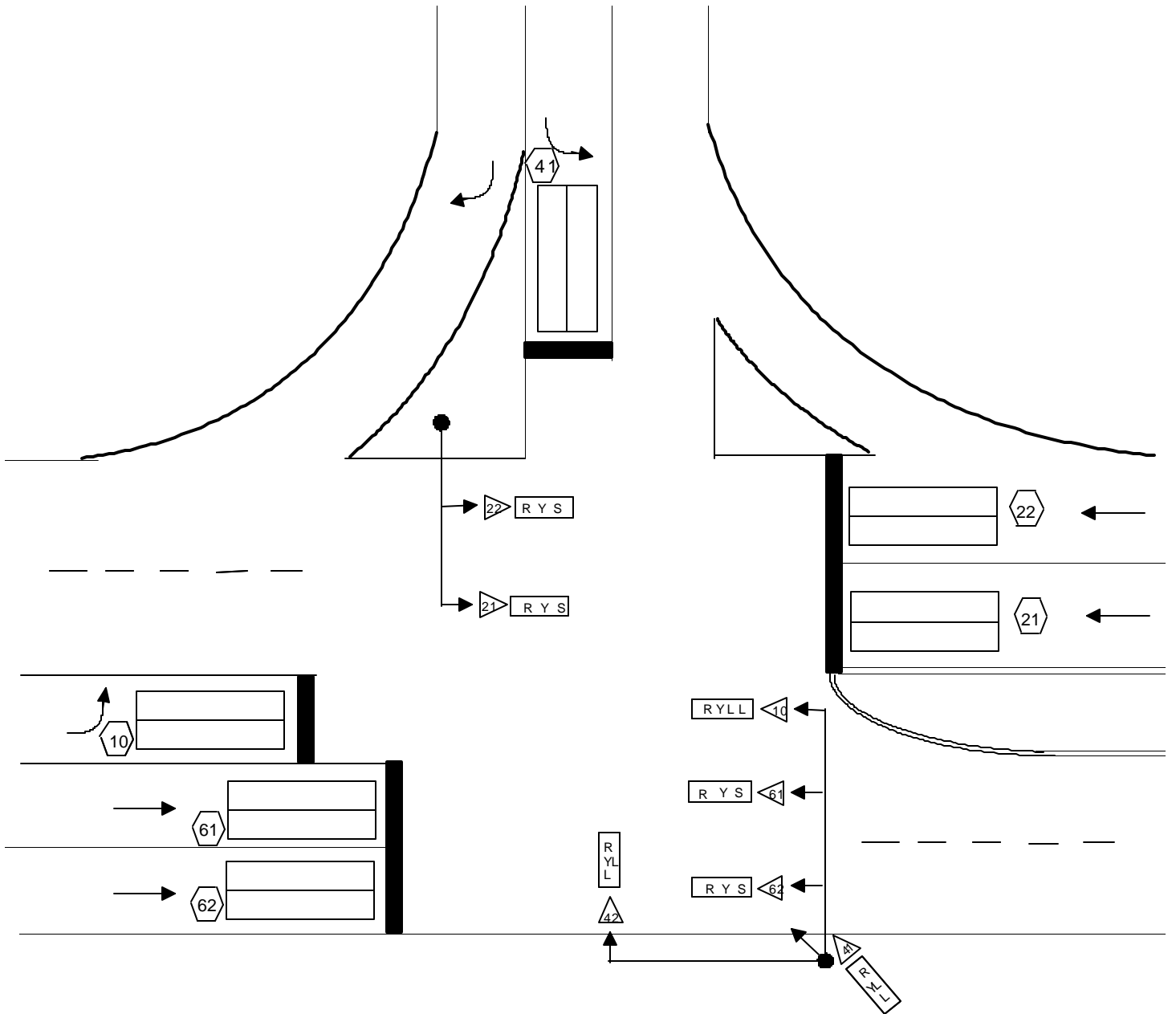
RING 1

RING 2

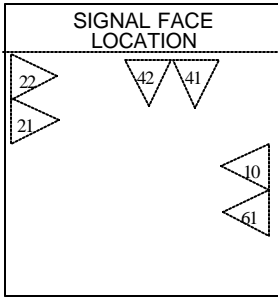
PHASE 1	PHASE 2	PHASE 3	PHASE 4
		NOT USED	
NOT USED		NOT USED	NOT USED
PHASE 5	PHASE 6	PHASE 7	PHASE 8



EXAMPLE D



EXAMPLE D



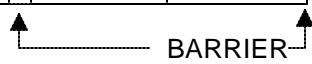
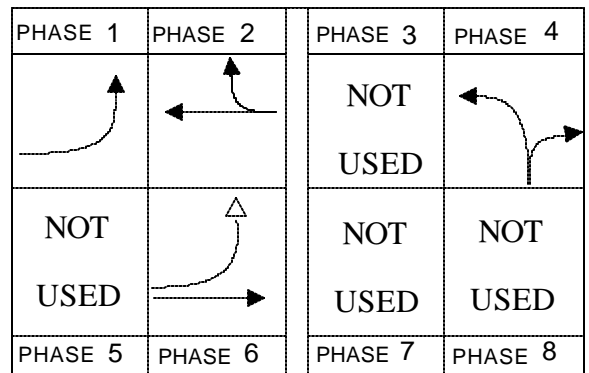
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
				NOT USED		NOT USED		NOT USED	NOT USED
FACE NUMBERS	LOAD SWITCH CONTROL	10	21		41 42		61 10		
			22						
SIGNAL INDICATIONS	R		R		R R		R R		
	Y	YL	Y		Y YL		Y Y		
	G	L	G		L L		S G		
DETECTOR ASSIGNMENTS		10	21		41		61		

TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
		PED ϕ	PED ϕ	PED ϕ	PED ϕ				
		OVERLAP A	OVERLAP	OVERLAP	OVERLAP				
FACE NUMBERS	LOAD SWITCH CONTROL								
SIGNAL INDICATIONS	R								
	Y								
	G								
OVERLAP PARENT PHASES									
DETECTOR ASSIGNMENT (PEDS ONLY)									

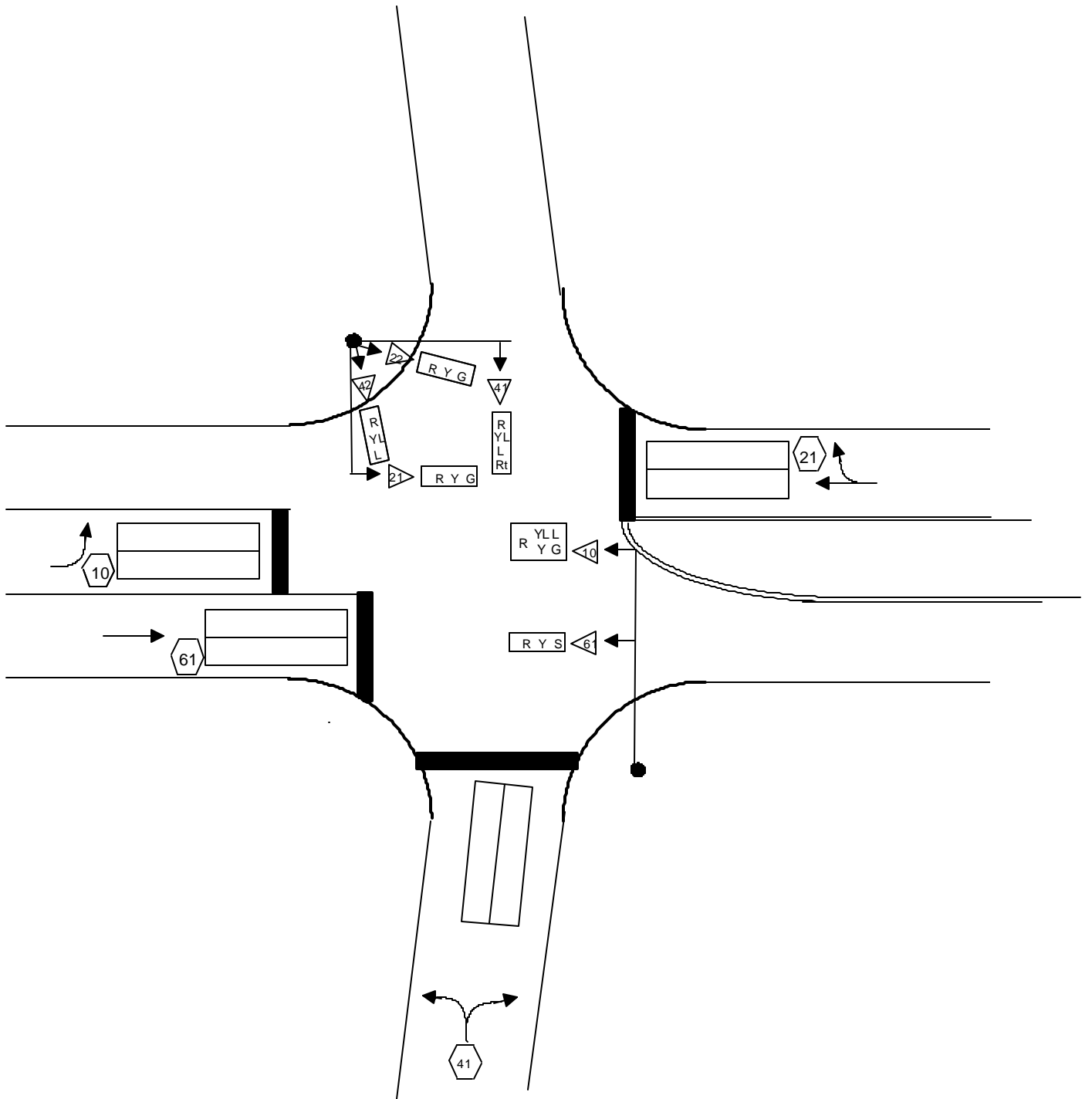
RING STRUCTURE

RING 1

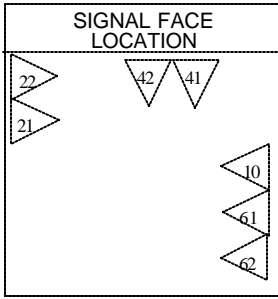
RING 2



EXAMPLE E



EXAMPLE E



TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
				←		←		←	
		NOT USED		NOT USED		→		NOT USED	
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL	10	21		41		61		
			22		42		62		
SIGNAL INDICATIONS	R	R	R		R		R		
	Y	YL	Y		YL		Y		
	G	L	S		L		S		
DETECTOR ASSIGNMENTS		10	21 22		41 42		61 62		

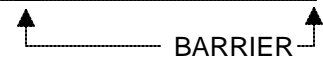
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
		←		←		←		←	
		←		←		←		←	
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL								
SIGNAL INDICATIONS	R								
	Y								
	G								
OVERLAP PARENT PHASES									
DETECTOR ASSIGNMENT (PEDS ONLY)									

RING STRUCTURE

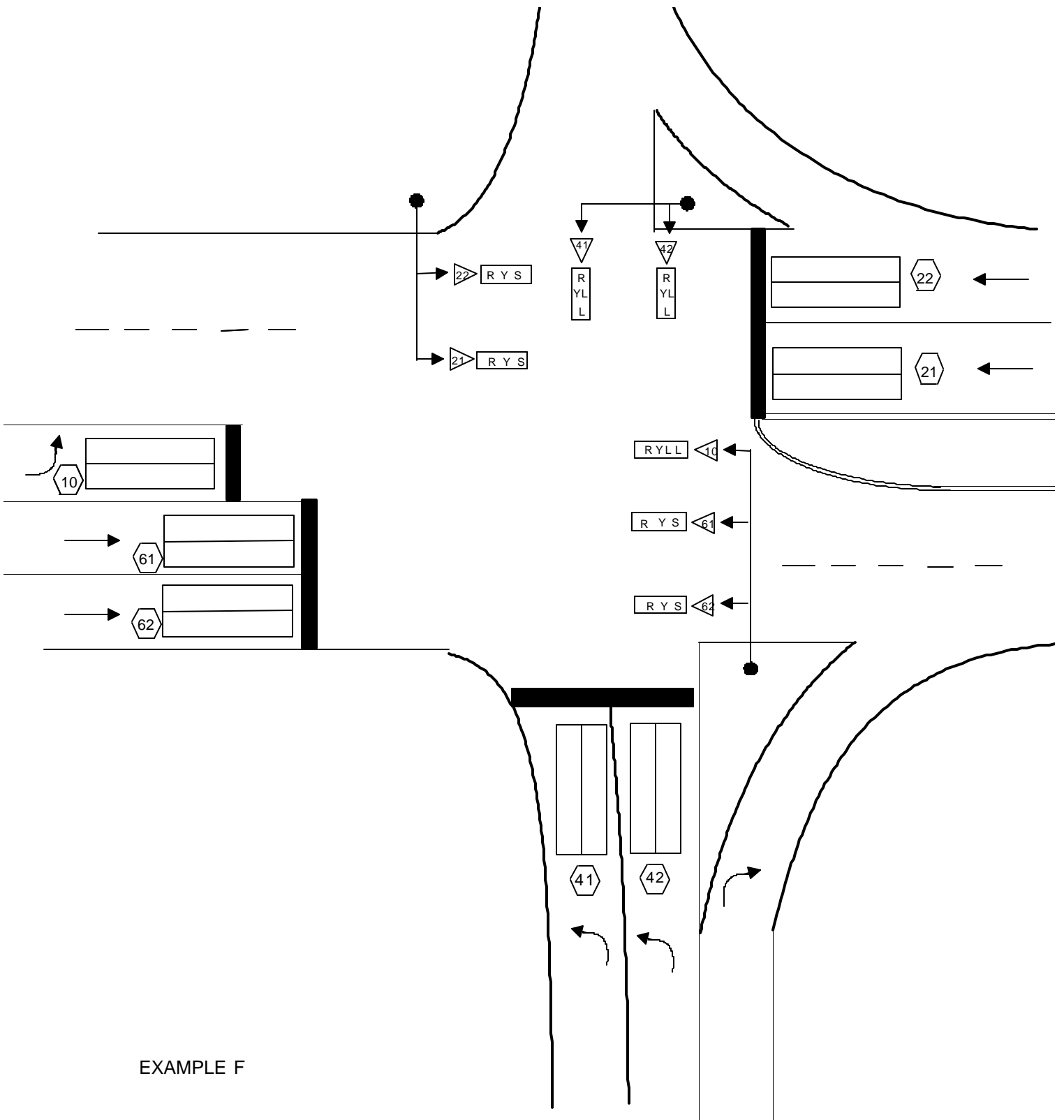
RING 1

RING 2

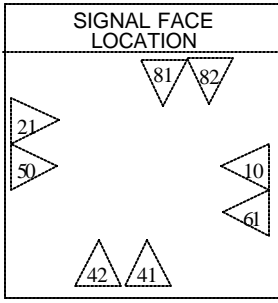
PHASE 1	PHASE 2	PHASE 3	PHASE 4
	←	NOT USED	
NOT USED	→	NOT USED	NOT USED
PHASE 5	PHASE 6	PHASE 7	PHASE 8
→	→	←	←



EXAMPLE F



EXAMPLE F

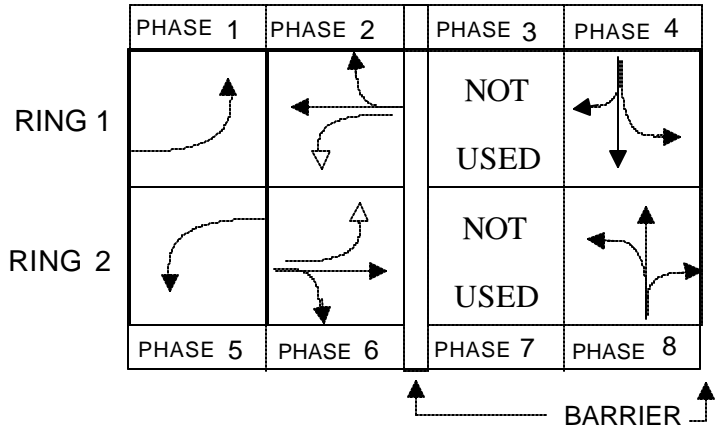


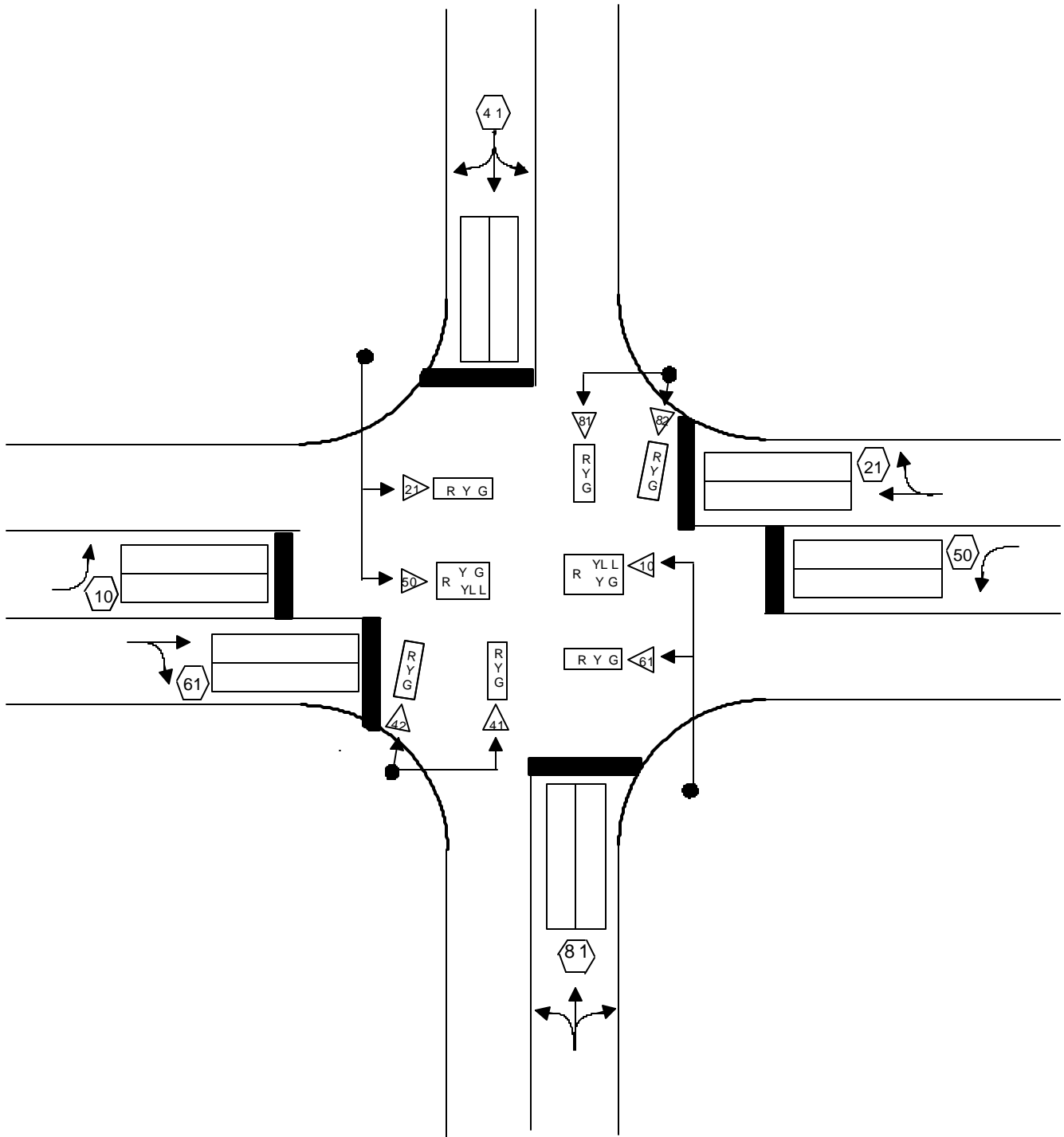
		TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS							
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL	10	21 50		41	50	61 10		81
					42				82
SIGNAL INDICATIONS	R		R R		R		R R		R
	Y	YL	Y Y		Y	YL	Y Y		Y
	G	L	G G		G	L	G G		G
DETECTOR ASSIGNMENTS		10	21		41	50	61		81

		TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS							
		PED ϕ	PED ϕ	PED ϕ	PED ϕ				
		OVERLAP	OVERLAP	OVERLAP	OVERLAP				
FACE NUMBERS	LOAD SWITCH CONTROL								
SIGNAL INDICATIONS	R								
	Y								
	G								
OVERLAP PARENT PHASES									
DETECTOR ASSIGNMENT (PEDS ONLY)									

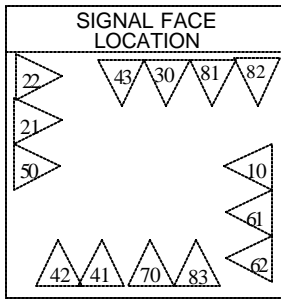
RING STRUCTURE

EXAMPLE G





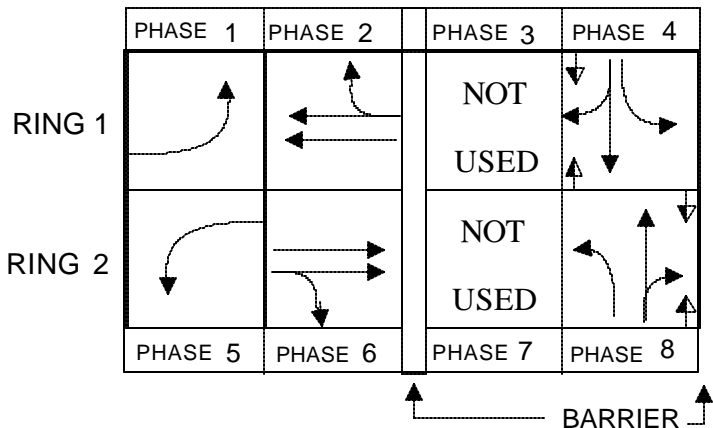
EXAMPLE G



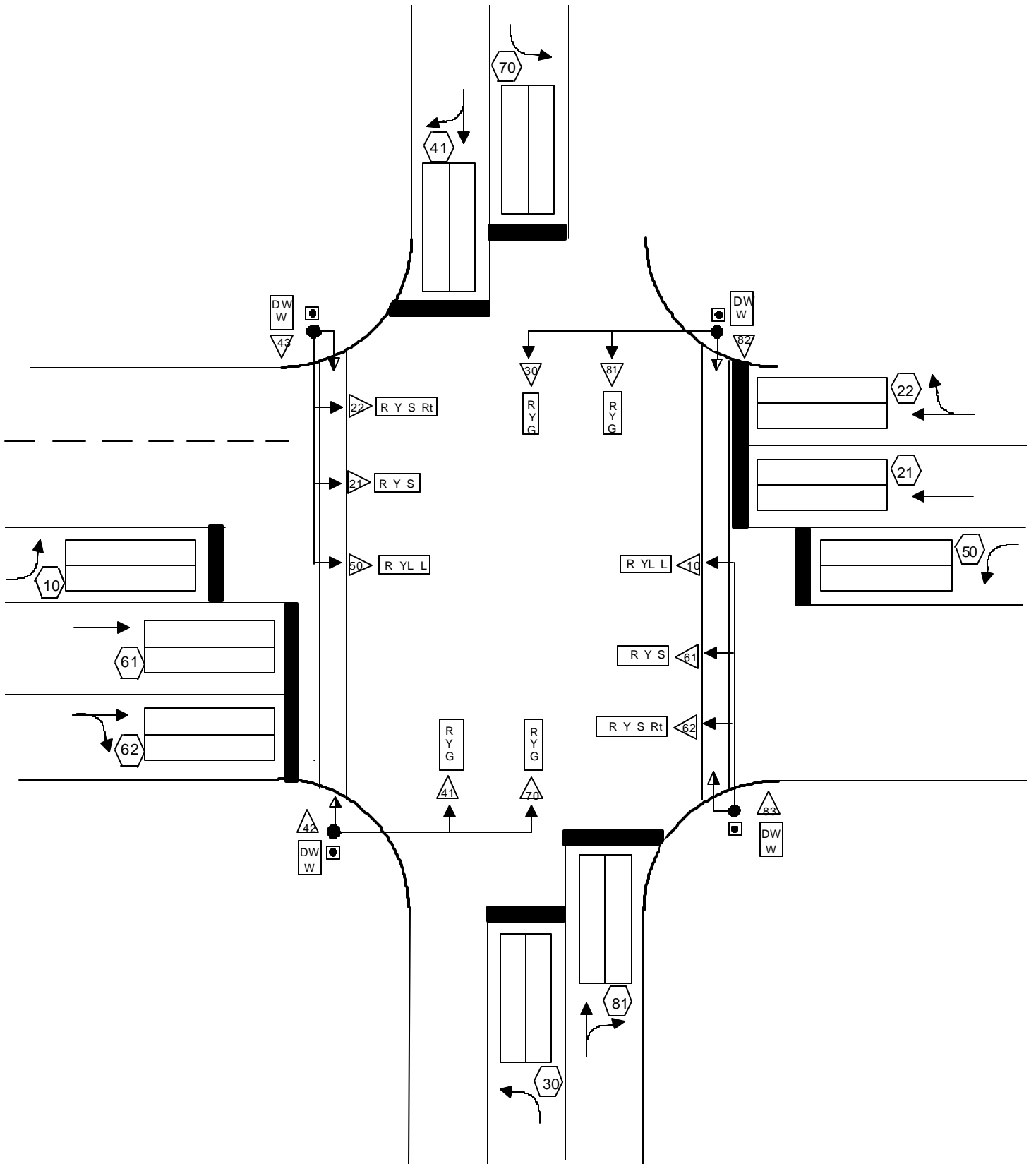
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS													
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8				
FACE NUMBERS	LOAD SWITCH CONTROL	10	21 22		41 70	50	61 62		81 30				
	SIGNAL INDICATIONS	R	R	R R	R R	R	R R		R R	R R			
		Y	YL	Y Y		Y Y	YL	Y Y		Y Y	Y Y		
		G	L	S S		G G	L	S S		G G	G G		
DETECTOR ASSIGNMENTS		10	21 22		41 70	50	61 62		81 30				

TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS												
		PED ϕ 4	PED ϕ 8	PED ϕ	PED ϕ							
		OVERLAP	OVERLAP	OVERLAP	OVERLAP							
FACE NUMBERS	LOAD SWITCH CONTROL	42	82									
	SIGNAL INDICATIONS	R	DW	DW								
		Y										
G		W	W									
OVERLAP PARENT PHASES												
DETECTOR ASSIGNMENT (PEDS ONLY)		42 43	82 83									

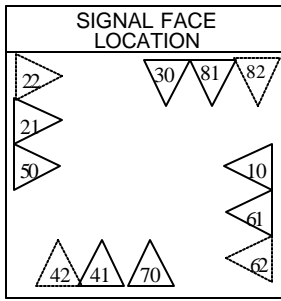
RING STRUCTURE



EXAMPLE H

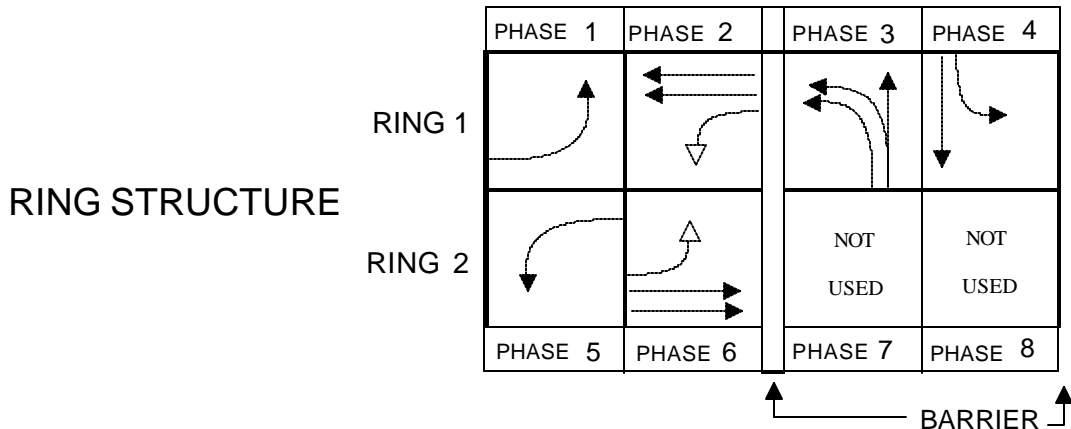


EXAMPLE H

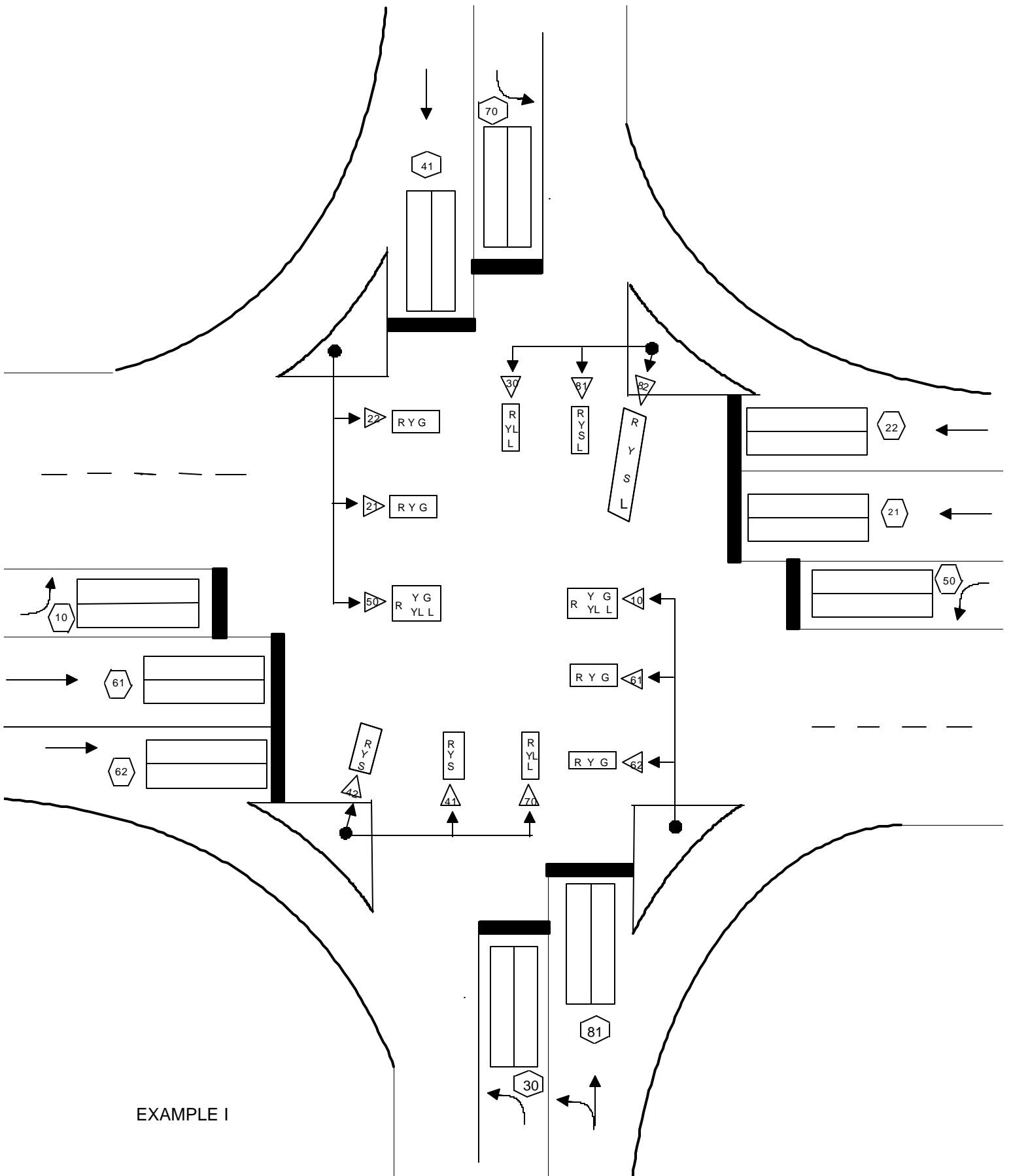


		TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS																																					
		PHASE 1				PHASE 2				PHASE 3				PHASE 4				PHASE 5				PHASE 6				PHASE 7				PHASE 8									
FACE NUMBERS	LOAD SWITCH CONTROL	10				21	50			81	82	30				41	70			50				61	10														
						22										42								62															
SIGNAL INDICATIONS	R					R	R			R	R	R			R	R							R	R															
	Y	YL				Y	Y			Y	Y	YL			Y	YL			YL				Y	Y															
	G	L				G	G			S	S	L			S	L			L				G	G															
DETECTOR ASSIGNMENTS		10				21	22			81	82	30			41	70			50				61	62															

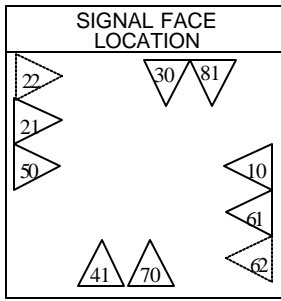
		TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS																															
		PED ϕ OVERLAP				PED ϕ OVERLAP				PED ϕ OVERLAP				PED ϕ OVERLAP																			
FACE NUMBERS	LOAD SWITCH CONTROL																																
SIGNAL INDICATIONS	R																																
	Y																																
	G																																
OVERLAP PARENT PHASES																																	
DETECTOR ASSIGNMENT (PEDS ONLY)																																	



EXAMPLE 1



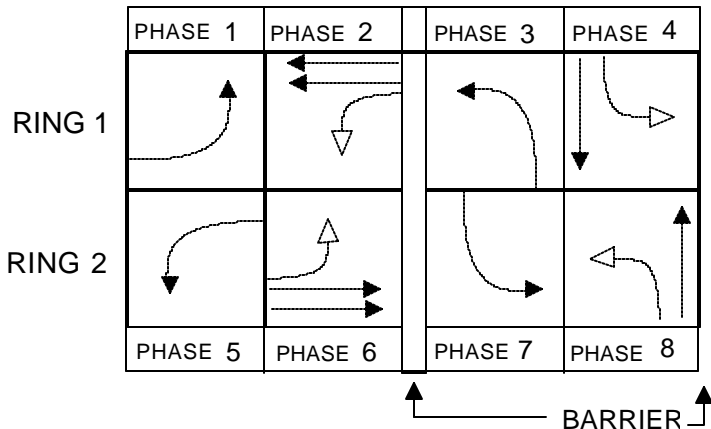
EXAMPLE I



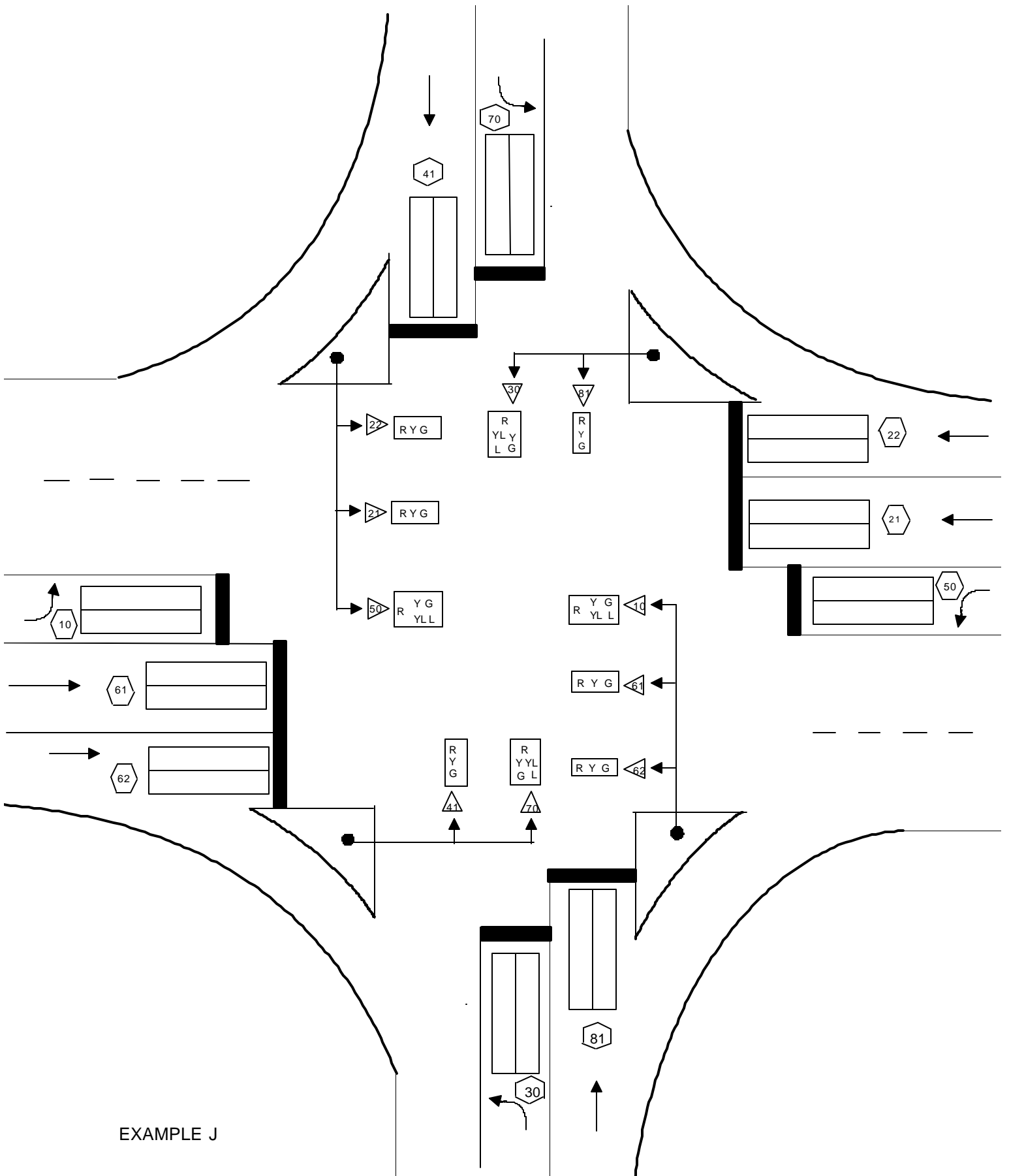
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS												
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8			
FACE NUMBERS	LOAD SWITCH CONTROL	10	21 50	30	41 70	50	61 10	70	81 30			
			22				62					
SIGNAL INDICATIONS	R		R R		R R		R R		R R			
	Y	YL	Y Y	YL	Y Y	YL	Y Y	YL	Y Y			
	G	L	G G	L	G G	L	G G	L	G G			
DETECTOR ASSIGNMENTS		10	21 22	30	41	50	61 62	70	81			

TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS												
		PED ϕ	PED ϕ	PED ϕ	PED ϕ							
		OVERLAP	OVERLAP	OVERLAP	OVERLAP							
FACE NUMBERS	LOAD SWITCH CONTROL											
SIGNAL INDICATIONS	R											
	Y											
	G											
OVERLAP PARENT PHASES												
DETECTOR ASSIGNMENT (PEDS ONLY)												

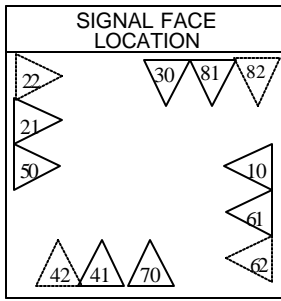
RING STRUCTURE



EXAMPLE J



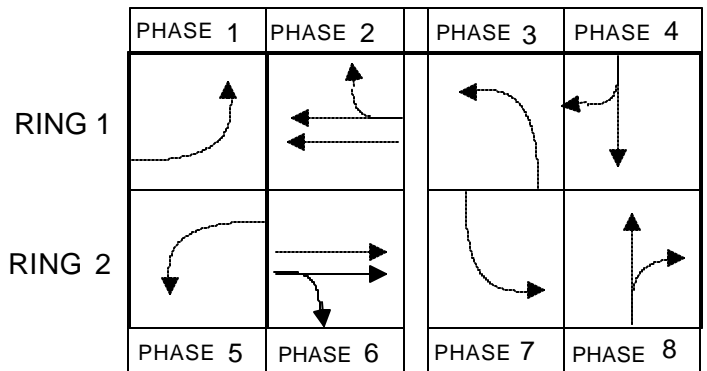
EXAMPLE J



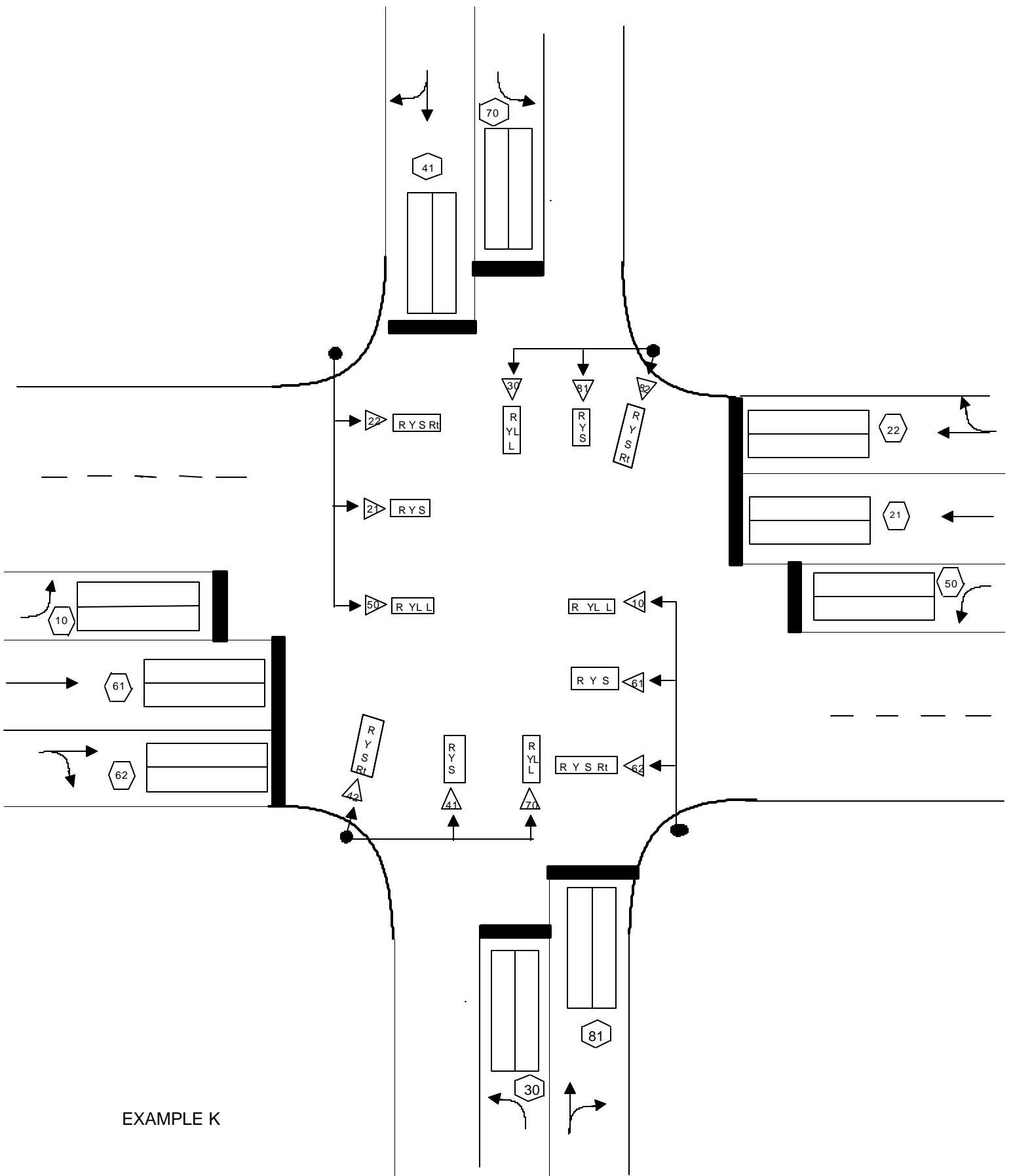
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS																	
		PHASE 1		PHASE 2		PHASE 3		PHASE 4		PHASE 5		PHASE 6		PHASE 7		PHASE 8	
FACE NUMBERS	LOAD SWITCH CONTROL	10		21	22	30		41	42	50		61	62	70		81	82
		R	R	R	R	R		R	R	R		R	R	R		R	R
		Y	YL	Y	Y	YL		Y	Y	YL		Y	Y	YL		Y	Y
		G	L	S	S	L		S	S	L		S	S	L		S	S
DETECTOR ASSIGNMENTS		10		21	22	30		41		50		61	62	70		81	

TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS																	
		PED ϕ OVERLAP		PED ϕ OVERLAP		PED ϕ OVERLAP		PED ϕ OVERLAP									
FACE NUMBERS	LOAD SWITCH CONTROL																
		R															
		Y															
		G															
OVERLAP PARENT PHASES																	
DETECTOR ASSIGNMENT (PEDS ONLY)																	

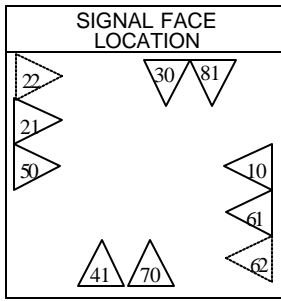
RING STRUCTURE



EXAMPLE K



EXAMPLE K

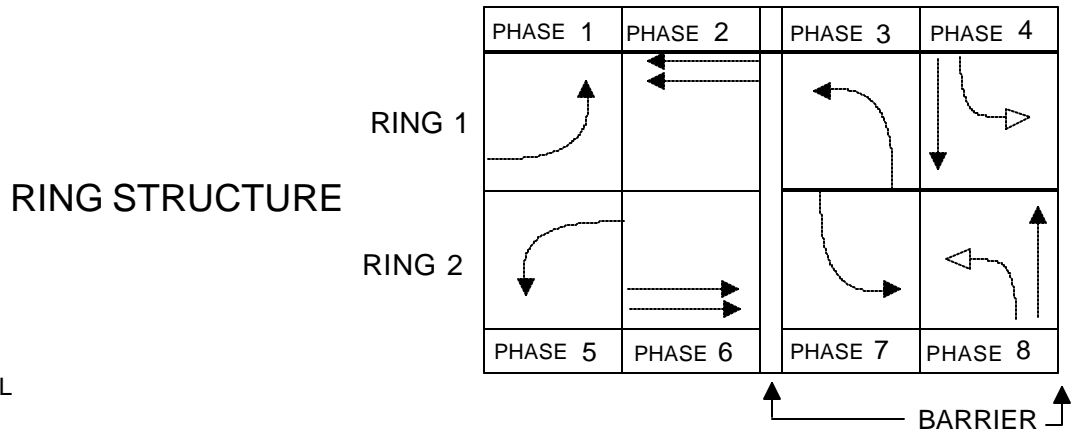


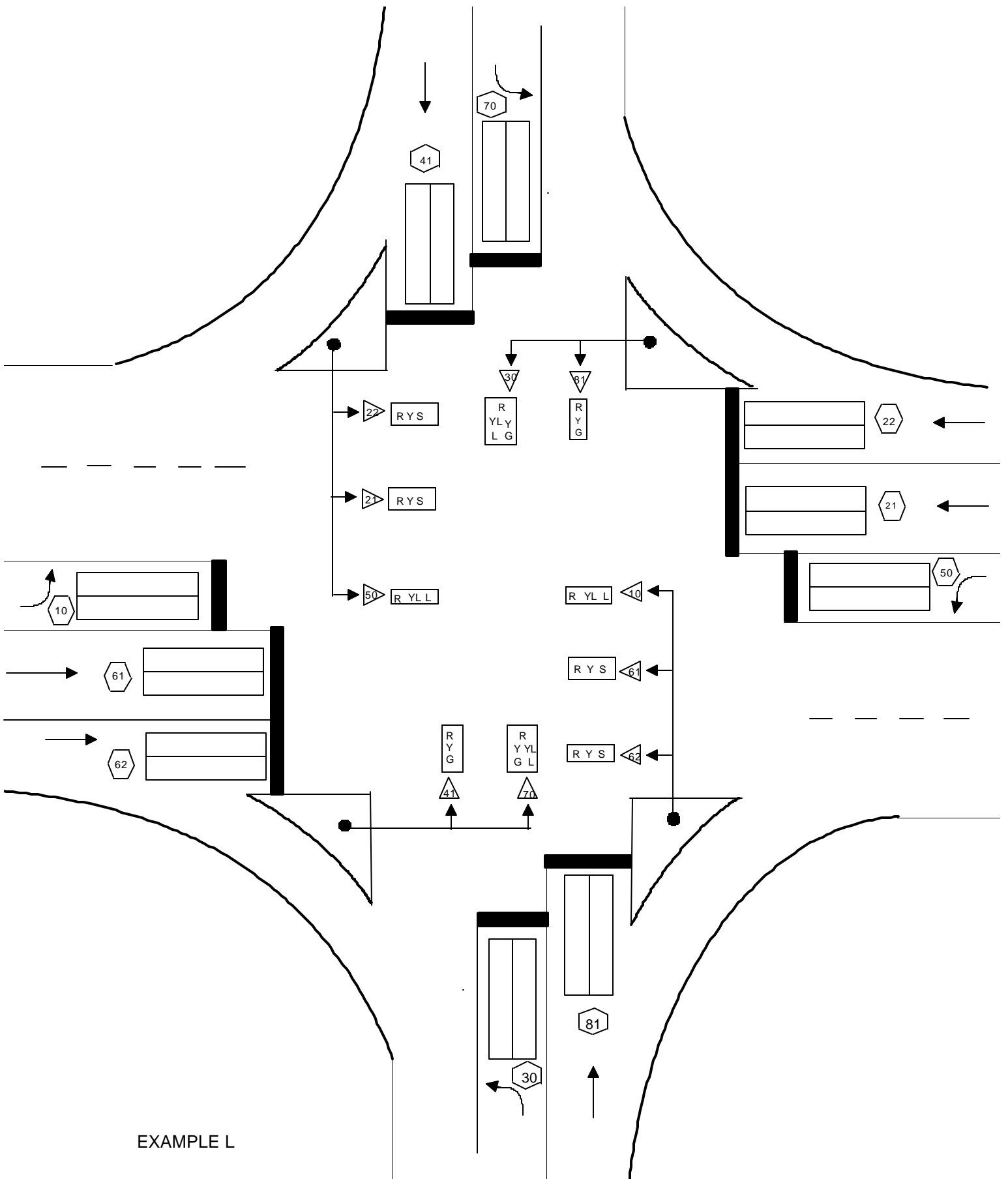
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS

		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL	10	21	30	41 70	50	61	70	81 30
			22				62		
SIGNAL INDICATIONS	R	R	R		R R	R	R		R R
	Y	YL	Y	YL	Y Y	YL	Y	YL	Y Y
	G	L	S	L	G G	L	S	L	G G
DETECTOR ASSIGNMENTS		10	21 22	30	41	50	61 62	70	81

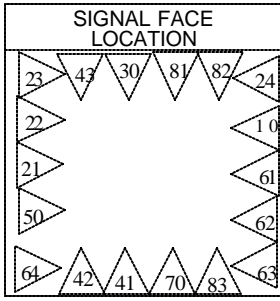
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS

		PED ϕ OVERLAP	PED ϕ OVERLAP	PED ϕ OVERLAP	PED ϕ OVERLAP				
FACE NUMBERS	LOAD SWITCH CONTROL								
	SIGNAL INDICATIONS	R							
		Y							
G									
OVERLAP PARENT PHASES									
DETECTOR ASSIGNMENT (PEDS ONLY)									





EXAMPLE L

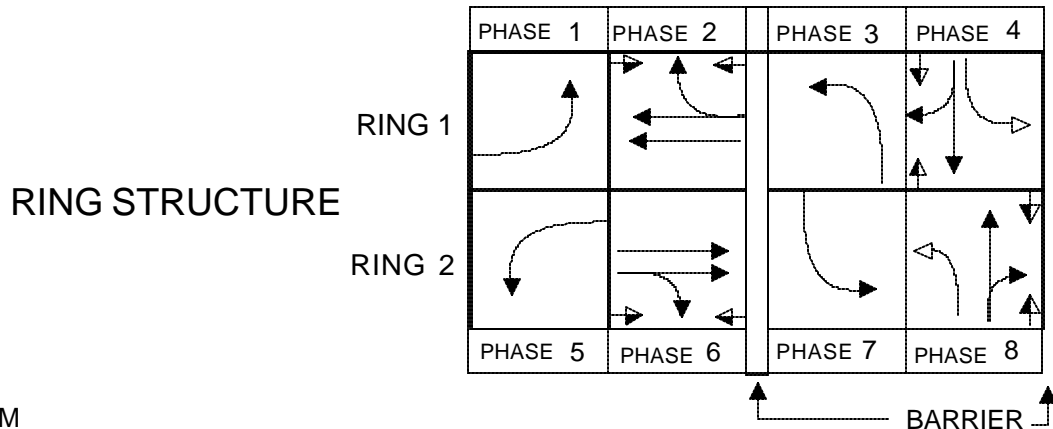


TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS

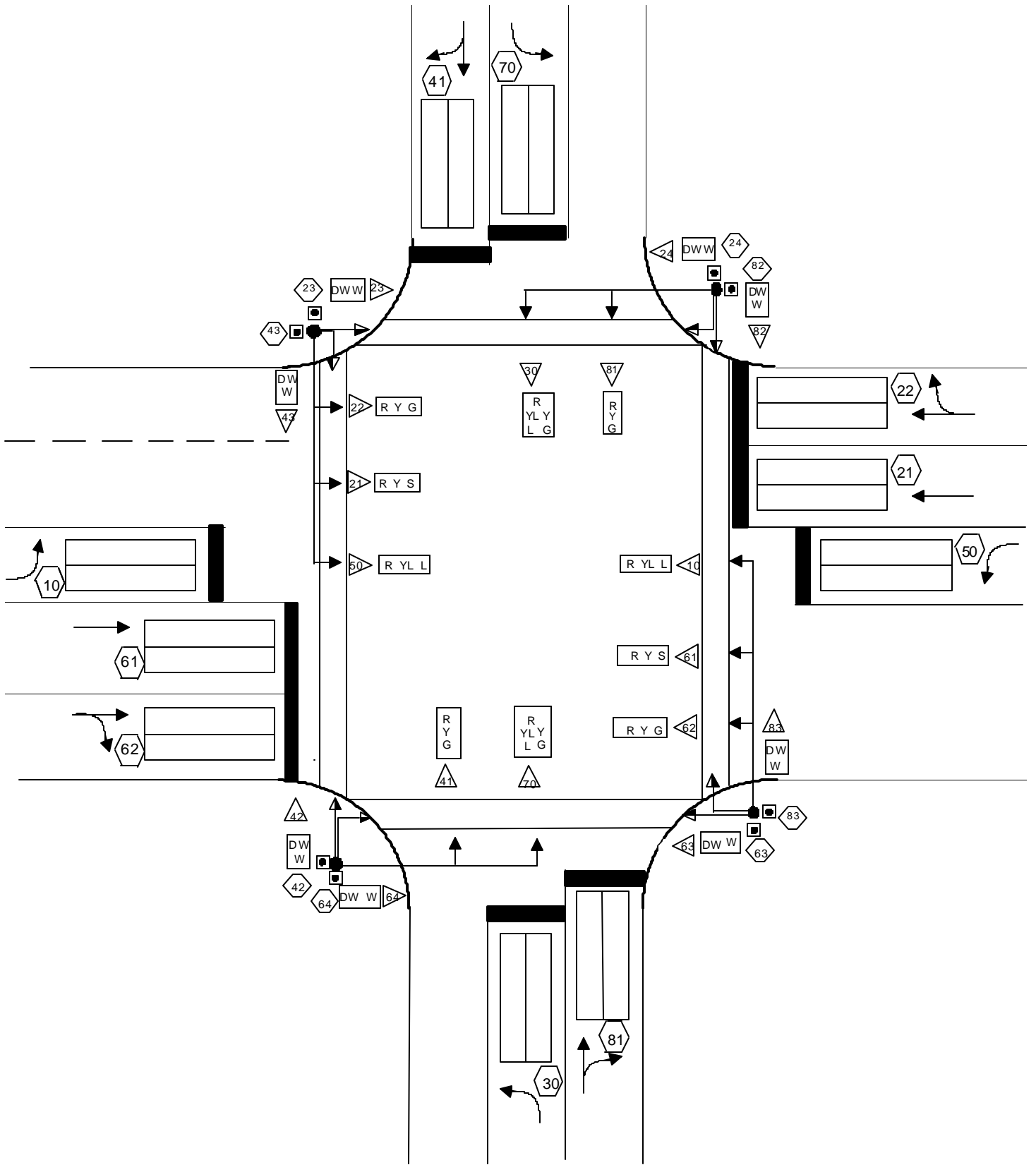
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL	10	21 22	30	41 70	50	61 62	70	81 30
	SIGNAL INDICATIONS	R R	R R		R R	R	R R		R R
SIGNAL INDICATIONS	Y	YL	Y Y	YL	Y Y	YL	Y Y	YL	Y Y
	G	L	S G	L	G G	L	S G	L	G G
DETECTOR ASSIGNMENTS		10	21 22	30	41 70	50	61 62		81 30

TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS

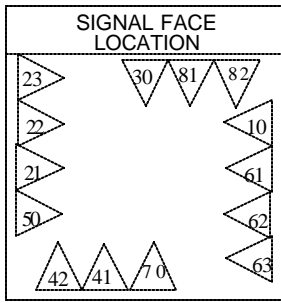
		PED ϕ 2	PED ϕ 4	PED ϕ 6	PED ϕ 8
OVERLAP		OVERLAP	OVERLAP	OVERLAP	OVERLAP
FACE NUMBERS	LOAD SWITCH CONTROL	23	42	63	82
		24	43	64	83
SIGNAL INDICATIONS	R	DW	DW	DW	DW
	Y				
	G		W	W	W
OVERLAP PARENT PHASES					
DETECTOR ASSIGNMENT (PEDS ONLY)		23 24	42 43	63 64	82 83



EXAMPLE M



EXAMPLE M

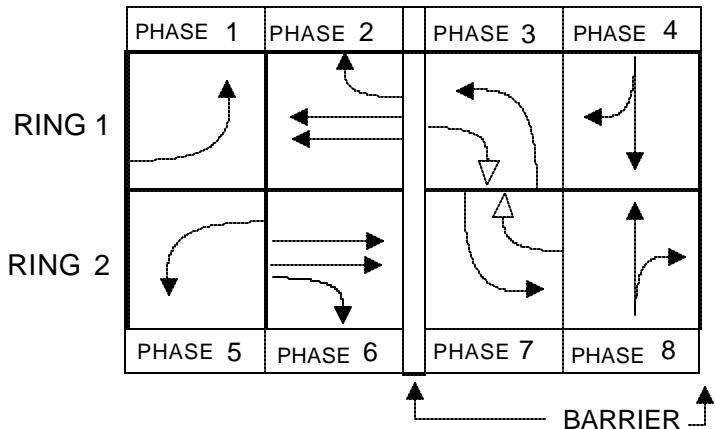


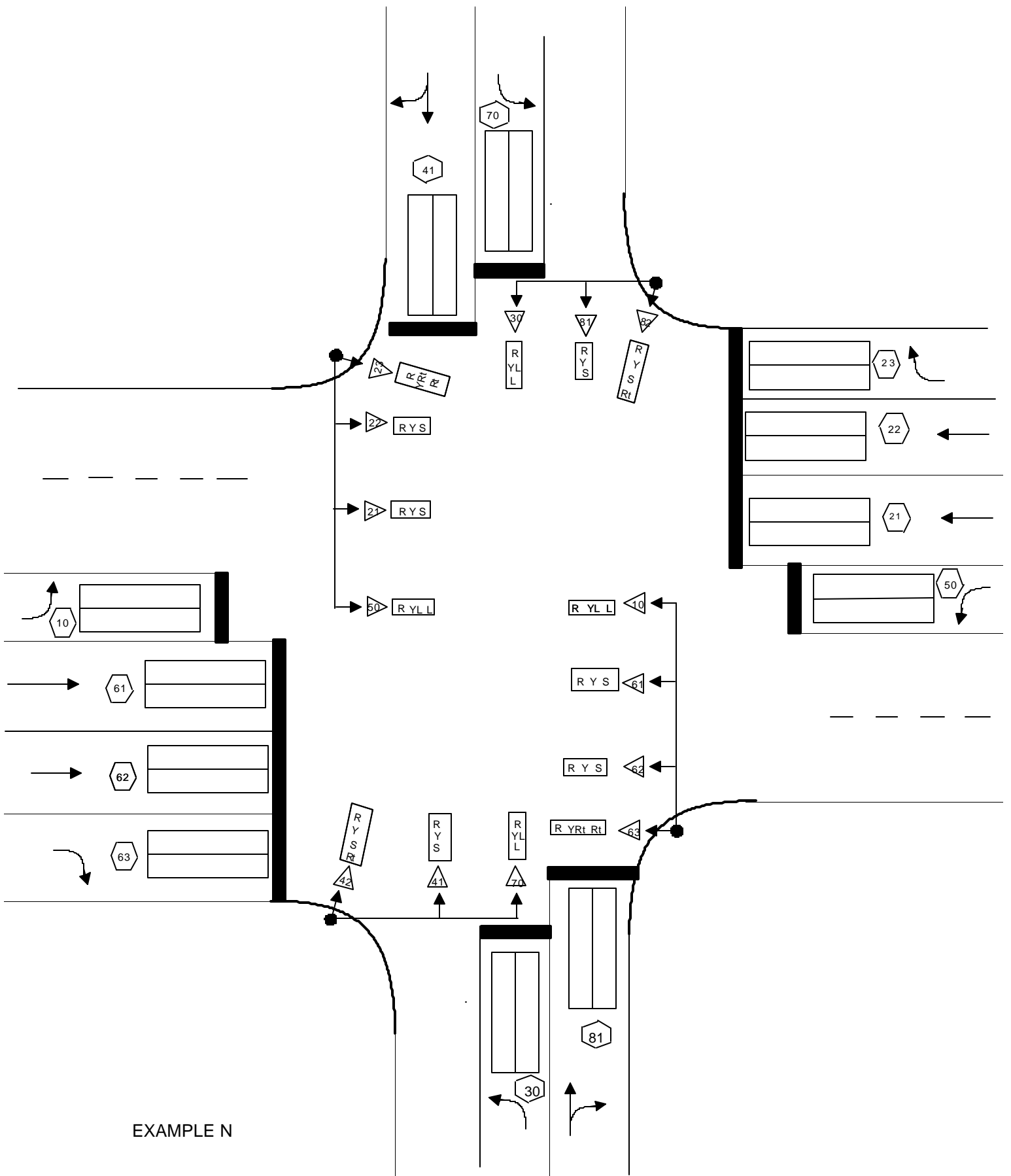
TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS																							
		PHASE 1			PHASE 2			PHASE 3			PHASE 4		PHASE 5		PHASE 6		PHASE 7		PHASE 8				
FACE NUMBERS	LOAD SWITCH CONTROL	10			21			30			41	42	50			61			70			81	82
					22										62								
		R	R		R			R			R	R	R			R			R			R	R
SIGNAL INDICATIONS		Y	YL		Y			YL			Y	Y	YL			Y			YL			Y	Y
		G	L		S			L			G	S	L			S			L			S	S
												Rt											Rt
DETECTOR ASSIGNMENTS		10			21	22	23	30			41		50			61	62	63	70			81	

TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS																						
		PED ϕ			PED ϕ			PED ϕ			PED ϕ											
		OVERLAP A			OVERLAP B			OVERLAP			OVERLAP											
FACE NUMBERS	LOAD SWITCH CONTROL	63			23																	
		R	R		R																	
		Y	YRt		YRt																	
SIGNAL INDICATIONS		G	Rt		Rt																	
OVERLAP PARENT PHASES		3	6		2	7																
DETECTOR ASSIGNMENT (PEDS ONLY)																						

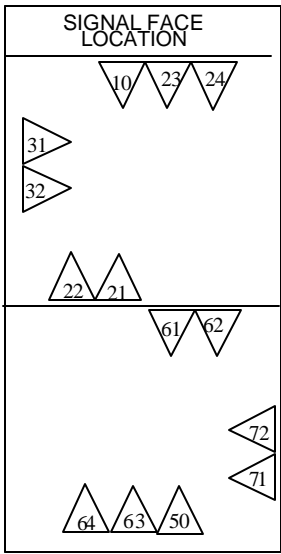
RING STRUCTURE

EXAMPLE N





EXAMPLE N

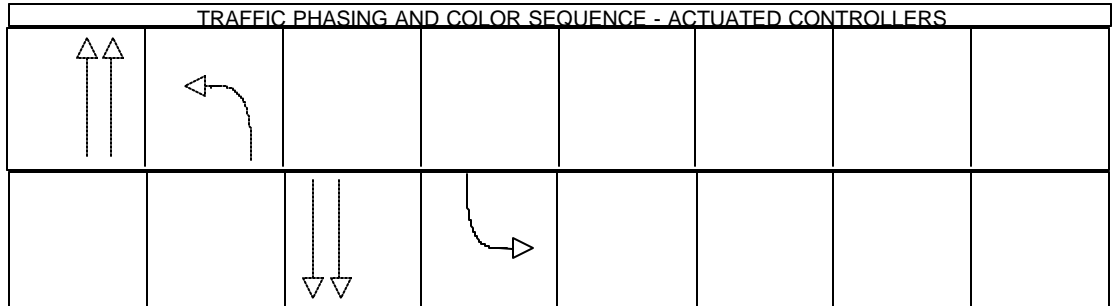


TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS

		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL		21	31			61	71	
		DUMMY	22	32	DUMMY	DUMMY	62	72	DUMMY
SIGNAL INDICATIONS	R		R	R			R	R	
	Y		Y	YL			Y	YL	
	G	PHASE	S	L	PHASE	PHASE	S	L	PHASE
DETECTOR ASSIGNMENTS		10	21 22 23 24	31		50	61 62 63 64	71	

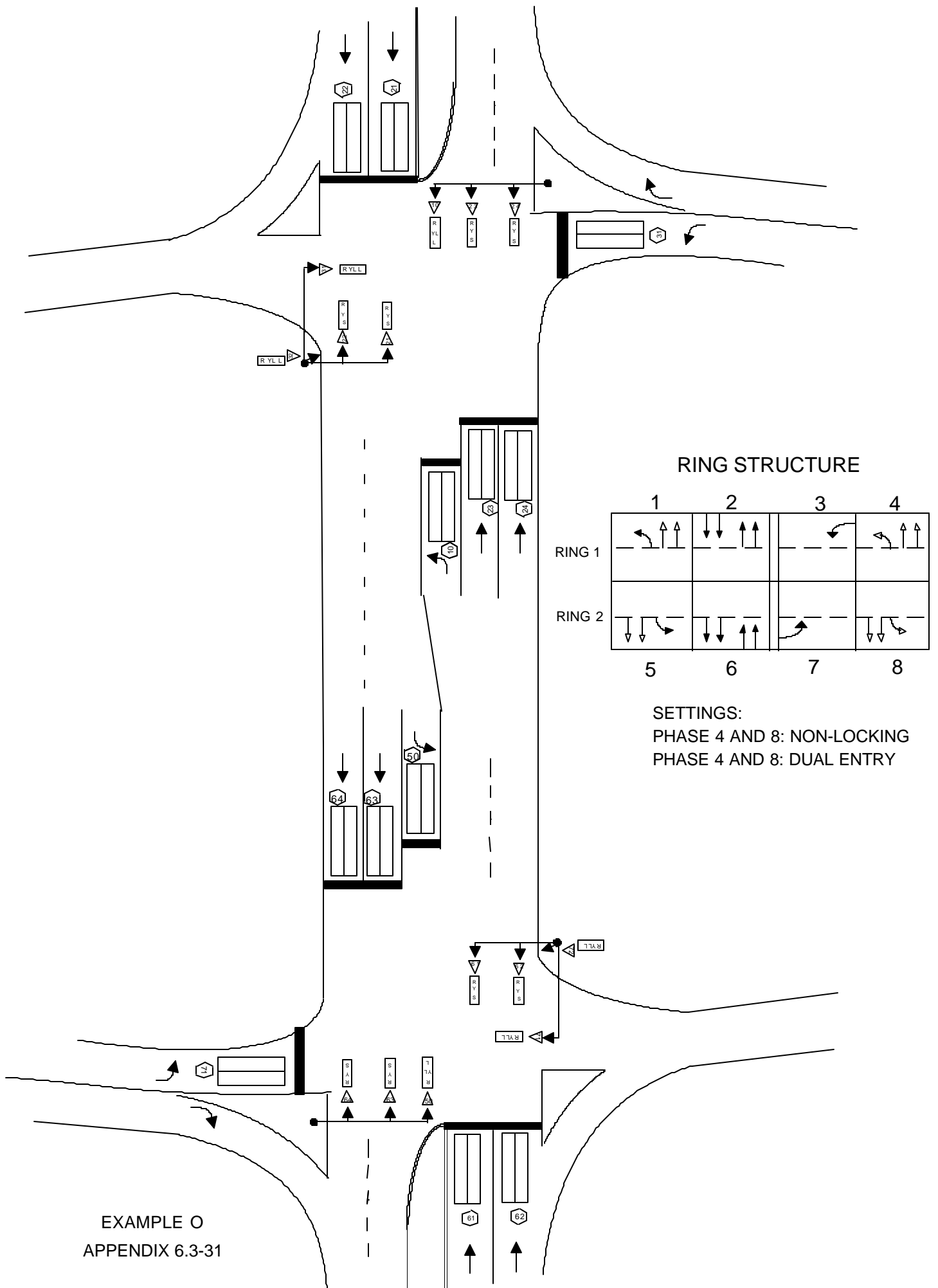
PHASE 3 GAP OUT AND PHASE 7 GREEN SHALL CALL PHASE 4

PHASE 7 GAP OUT AND PHASE 3 GREEN SHALL CALL PHASE 4

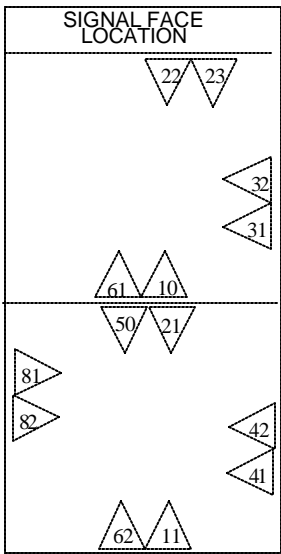


		PED ϕ OVERLAP A	PED ϕ OVERLAP B	PED ϕ OVERLAP C	PED ϕ OVERLAP D
FACE NUMBERS	LOAD SWITCH CONTROL	23	10	63	50
		24		64	
SIGNAL INDICATIONS	R	R	R	R	R
	Y	Y	YL	Y	YL
	G	S	L	S	L
OVERLAP PARENT PHASES		1 2 4	1 4	5 6 8	5 8
DETECTOR ASSIGNMENT (PEDS ONLY)					

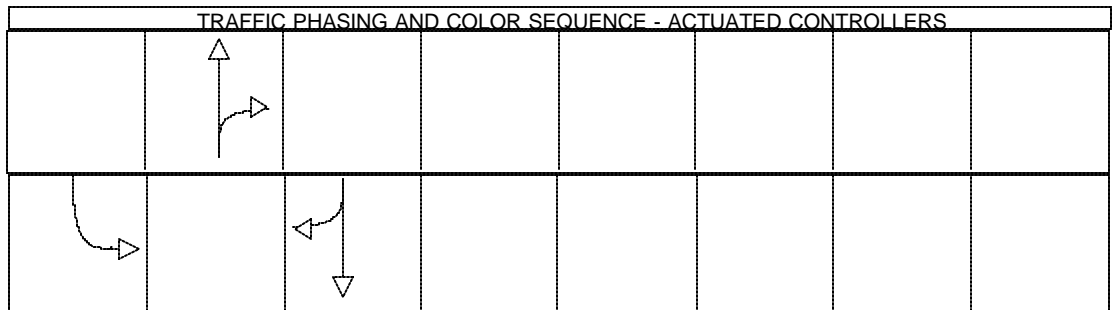
EXAMPLE O



EXAMPLE O
 APPENDIX 6.3-31

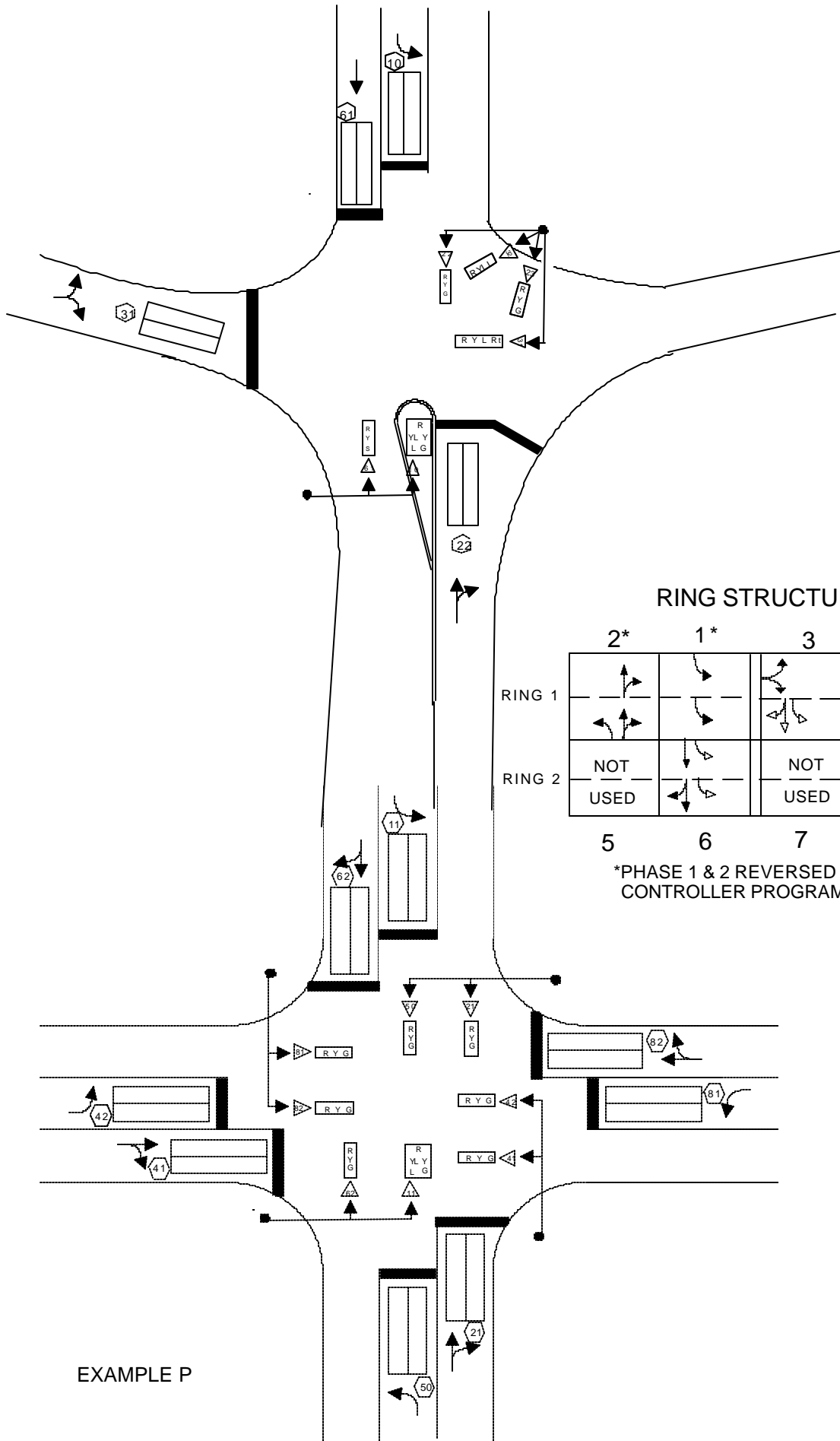


TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
						NOT		NOT	NOT
						USED		USED	USED
		10	21 50	31 32	41 81		61 10		
FACE NUMBERS	LOAD SWITCH CONTROL				42 82				
	R		R R	R R	R R		R R		
	Y	YL	Y Y	Y YL	Y Y		Y Y		
	G	L	G G	L L	G G		S G		
DETECTOR ASSIGNMENTS		10 11	21 22 50	31	41 42 81 82		61 62		

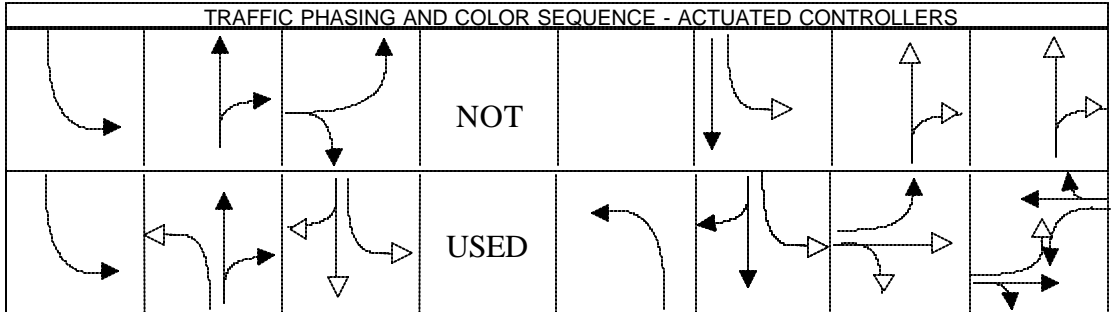
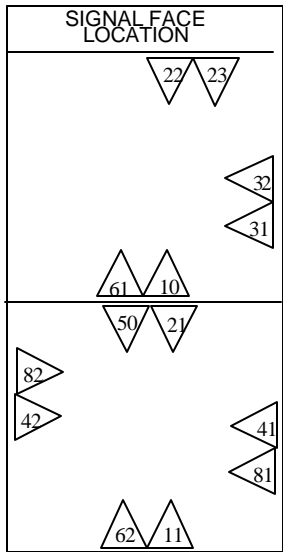


TRAFFIC PHASING AND COLOR SEQUENCE - ACTUATED CONTROLLERS									
		PED ϕ OVERLAP A	PED ϕ OVERLAP B	PED ϕ OVERLAP C	PED ϕ OVERLAP				
FACE NUMBERS	LOAD SWITCH CONTROL	11	22	62 11					
			23						
	R		R	R R					
	Y	YL	Y	Y Y					
SIGNAL INDICATIONS	G	L	G	G G					
OVERLAP PARENT PHASES		1 3	2 4	3 6					
DETECTOR ASSIGNMENT (PEDS ONLY)									

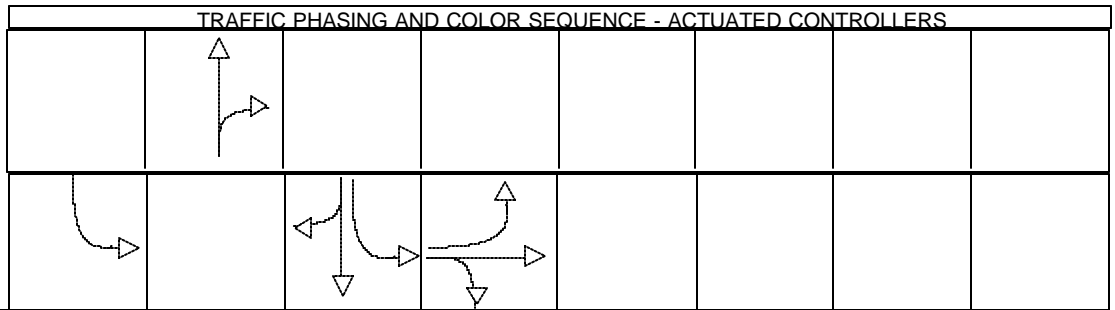
EXAMPLE P



EXAMPLE P

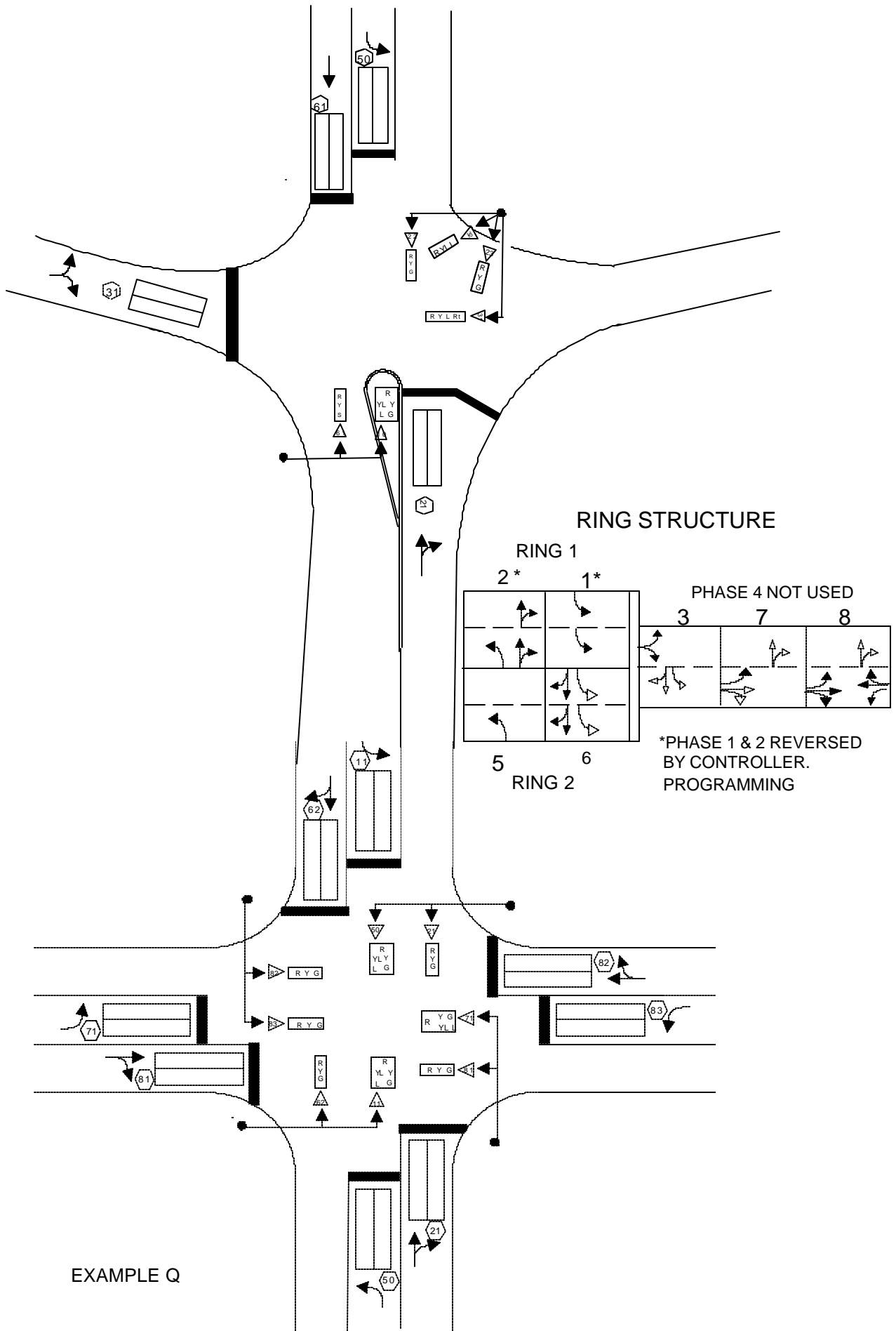


		PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
FACE NUMBERS	LOAD SWITCH CONTROL	10	21 50	31 32		50	61 10	71	82 83
	SIGNAL INDICATIONS	R	R R	R R			R R		R R
SIGNAL INDICATIONS	Y	YL	Y Y	Y YL		YL	Y Y	YL	Y Y
	G	L	G G	L L		L	S G	L	G G
				Rt					
DETECTOR ASSIGNMENTS			21 22	31		50	61 62	71	81 82 83



		PED ϕ OVERLAP A	PED ϕ OVERLAP B	PED ϕ OVERLAP C	PED ϕ OVERLAP D
FACE NUMBERS	LOAD SWITCH CONTROL	11	22	62 11	71 81
	SIGNAL INDICATIONS	R	R	R R	R R
SIGNAL INDICATIONS	Y	YL	Y	Y Y	Y Y
	G	L	G	G G	G G
OVERLAP PARENT PHASES		1 3	2 7 8	3 6	7 8
DETECTOR ASSIGNMENT (PEDS ONLY)					

EXAMPLE Q



EXAMPLE Q

