

Controller

EOS Basic Training

 **ECONOLITE**

Saving Lives Through Improved Mobility

Introduction to the Controller

- This chapter defines basic signal timing parameters that can be programmed for each phase
- While these features can influence coordinated operations, they are the main values used for uncoordinated operations
- Intersection movements are typically assigned to one or more phases as part of the design of a signalized intersection
- The parameters outlined in Timing Plans define how much time is given to each phase

MM-2 Controller

- The Controller submenu provides these options:

CONTROLLER SUBMENU	
1. TIMING PLAN	5. START/FLASH
2. VEHICLE OVERLAP	6. PHASE OPTION
3. VEH/PED OVERLAP	7. SEQUENCE
4. GUAR MIN TIME	8. PHASE MOVEMENTS

MM-2-1 Timing Plans

- Several basic timing parameters are typically programmed at a signalized intersection to control the amount of green, yellow, red, and pedestrian time given to each phase during uncoordinated operations
- Timing Plans provides nine options, each with its own screen that can be programmed for four different timing plans
- Select MM-2-1 to specify the type of Timing Plan to view or program: Minimum Green, Passage, Maximum Green, Pedestrian, Clearance, Phase Recall, Overlap, or Phase Output

MM-2-1-1 Min Green

- Minimum Green
 - The minimum (or initial) green interval is the first portion of the green interval and the shortest possible green time to accommodate vehicles for this phase
 - The actual minimum green time observed may be affected by:
 - Added initial
 - Vehicle extension
 - Bike minimum green
 - Guaranteed min green
 - Ped walk plus ped clearance

TIMING PLAN [1] >								
MINIMUM GREEN								
PHASE	1	2	3	4	5	6	7	8
GREEN	5	5	5	5	5	5	5	5
BIKE	0	0	0	0	0	0	0	0
COND SRV	0	0	0	0	0	0	0	0

VARIABLE INITIAL								
PHASE	1	2	3	4	5	6	7	8
LANE	NO	NO	NO	NO	NO	NO	NO	NO
#ACT B4	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0	0	0	0	0	0	0	0

MM-2-1-2 Passage

- Volume and Occupancy parameters determine the green extension thresholds on a phase
- EXTEND 1 sets the number of seconds a phase is extended per actuation
- A phase can gap out if all the following conditions are met:
 - The minimum green timer has expired
 - There is a call on a conflicting phase
 - The passage timer expired

TIMING PLAN [1] >								
VEHICLE PASSAGE								
PHASE	1	2	3	4	5	6	7	8
EXTEND1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
EXTEND2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VOLUME OCCUPANCY								
PHASE	1	2	3	4	5	6	7	8
BEFORE	0	0	0	0	0	0	0	0
#CARS	0	0	0	0	0	0	0	0
#STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REDUCE	0	0	0	0	0	0	0	0
MIN GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MM-2-1-3 Max Green

- This screen lets you input the maximum green time allowed per phase in the presence of an opposing call
- Maximum green may be set to MAX1, MAX2, or MAX3 depending on which time-based event plan is effective
- If a phase gaps out in one cycle and maxes out in the next cycle, or vice versa, the maximum green time does not change

TIMING PLAN [1] >								
MAX GREEN DATA								
PHASE	1	2	3	4	5	6	7	8
MAX1	35	35	35	35	35	35	35	35
MAX2	40	40	40	40	40	40	40	40
MAX3	0	0	0	0	0	0	0	0

DYNAMIC MAX								
PHASE	1	2	3	4	5	6	7	8
DYM MAX	0	0	0	0	0	0	0	0
DYM STP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Dynamic Step and Dynamic Max

- If phase maxes out for two consecutive cycles, the controller will add the dynamic step onto the max in effect. This will continue until the dynamic max value is reached
- If the controller gaps out for two consecutive cycles, then the controller will start to step back by the dynamic step value toward the original max in effect for the following cycle

TIMING PLAN [1] >								
MAX GREEN DATA								
PHASE	1	2	3	4	5	6	7	8
MAX1	35	35	35	35	35	35	35	35
MAX2	40	40	40	40	40	40	40	40
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX								
PHASE	1	2	3	4	5	6	7	8
DYM MAX	0	0	0	0	0	0	0	0
DYM STP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MM-2-1-4 Pedestrian

- Use this screen to configure walk, pedestrian clearance, and pedestrian extension values

TIMING PLAN [1]									>	v
PEDESTRIAN										
PHASE	1	2	3	4	5	6	7	8		
DELAY	0	0	0	0	0	0	0	0	0	
WALK	0	10	0	10	0	10	0	10		
CLEAR	0	16	0	16	0	16	0	16		
ADVANCED	0	0	0	0	0	0	0	0		
ALTERNATE										
PHASE	1	2	3	4	5	6	7	8		
WALK2	0	0	0	0	0	0	0	0	0	
CLEAR2	0	0	0	0	0	0	0	0	0	
PEDESTRIAN CARRY OVER										
PHASE	1	2	3	4	5	6	7	8		
TO PHASE	0	0	0	0	0	0	0	0	0	
MAX EXTENSION										
PHASE	1	2	3	4	5	6	7	8		
WALK	0	0	0	0	0	0	0	0	0	
CLEAR	0	0	0	0	0	0	0	0	0	
HAWK										
PHASE	1	2	3	4	5	6	7	8		
INGRES PH	0	0	0	0	0	0	0	0	0	
TRAVL TM	0	0	0	0	0	0	0	0	0	

MM-2-1-4 Pedestrian

- Pedestrian
 - The larger of this WALK time and the guaranteed WALK Time during which WALK or walking person symbol displays following a pedestrian call
 - The larger of this PED CLR time and the guaranteed PED CLR time during which DONT WALK or hand symbol is flashing following pedestrian WALK time

TIMING PLAN [1]									>	v
PEDESTRIAN										
PHASE	1	2	3	4	5	6	7	8		
DELAY	0	0	0	0	0	0	0	0		
WALK	0	10	0	10	0	10	0	10		
CLEAR	0	16	0	16	0	16	0	16		
ADVANCED	0	0	0	0	0	0	0	0		
ALTERNATE										
PHASE	1	2	3	4	5	6	7	8		
WALK2	0	0	0	0	0	0	0	0		
CLEAR2	0	0	0	0	0	0	0	0		
PEDESTRIAN CARRY OVER										
PHASE TO PHASE	1	2	3	4	5	6	7	8		
	0	0	0	0	0	0	0	0		
MAX EXTENSION										
PHASE	1	2	3	4	5	6	7	8		
WALK	0	0	0	0	0	0	0	0		
CLEAR	0	0	0	0	0	0	0	0		
HAWK										
PHASE	1	2	3	4	5	6	7	8		
INGRES PH	0	0	0	0	0	0	0	0		
TRAVL TM	0	0	0	0	0	0	0	0		

MM-2-1-4 Pedestrian

- Alternate
 - WALK2 is actuated by Time Base Event Plan, Pedestrian Detector Assignment, or mapped cabinet input
 - CLEAR2 time follows Walk 2
- HAWK
 - Ingress Phase and Travel Times is used for configuring HAWK operation with coordination

TIMING PLAN [1]									>	v
PEDESTRIAN										
PHASE	1	2	3	4	5	6	7	8		
DELAY	0	0	0	0	0	0	0	0	0	
WALK	0	10	0	10	0	10	0	10		
CLEAR	0	16	0	16	0	16	0	16		
ADVANCED	0	0	0	0	0	0	0	0		
ALTERNATE										
PHASE	1	2	3	4	5	6	7	8		
WALK2	0	0	0	0	0	0	0	0		
CLEAR2	0	0	0	0	0	0	0	0		
PEDESTRIAN CARRY OVER										
PHASE	1	2	3	4	5	6	7	8		
TO PHASE	0	0	0	0	0	0	0	0		
MAX EXTENSION										
PHASE	1	2	3	4	5	6	7	8		
WALK	0	0	0	0	0	0	0	0		
CLEAR	0	0	0	0	0	0	0	0		
HAWK										
PHASE	1	2	3	4	5	6	7	8		
INGRES PH	0	0	0	0	0	0	0	0		
TRAVL TM	0	0	0	0	0	0	0	0		

MM-2-1-5 Clearance

- Clearance
 - Configure red and yellow clearance values as well as the minimum red time before a phase can be re-serviced (red revert)
- Max Extension
 - The red clearance interval can extend up to the RED MAXIMUM limit when a phase has a detector set to RED EXTEND in VEHICLE DETECTOR OPTIONS

TIMING PLAN [1] >								
CLEARANCE								
PHASE	1	2	3	4	5	6	7	8
PRECLEAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

MAX EXTENSION								
PHASE	1	2	3	4	5	6	7	8
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HAWK FLASH								
PHASE	1	2	3	4	5	6	7	8
YELLOW	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
RED DLY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MM-2-1-5 Clearance

- Advance Warning Flasher
 - Pre-Clearance provides a fixed green period using the programmed value
 - AWF outputs are active when:
 - A phase is in Pre-Clearance
 - or Yellow Clearance
 - or Red Clearance
 - or Red Revert
 - or not timing (including omitted)
 - or when in AUTO flash via any source

TIMING PLAN [1] >								
CLEARANCE								
PHASE	1	2	3	4	5	6	7	8
PRECLEAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
MAX EXTENSION								
PHASE	1	2	3	4	5	6	7	8
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAWK FLASH								
PHASE	1	2	3	4	5	6	7	8
YELLOW	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
RED DLY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MM-2-1-5 Clearance

- HAWK Flash
 - Yellow is the period of flashing yellow after being dark, before the solid yellow clearance notifies vehicles to prepare to stop
 - Red Delay is the interval following the pedestrian clearance on the Pedestrian Phase, before the start of red flash on vehicle signal heads

TIMING PLAN [1] >								
CLEARANCE								
PHASE	1	2	3	4	5	6	7	8
PRECLEAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
MAX EXTENSION								
PHASE	1	2	3	4	5	6	7	8
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAWK FLASH								
PHASE	1	2	3	4	5	6	7	8
YELLOW	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
RED DLY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MM-2-1-6 Phase Recall

- Use this screen to select options for Phases 1 through 16 that include: Lock Detector, Vehicle Recall, Pedestrian Recall, Max Recall, Soft Recall, and No Rest
- The display below also applies to Timing Plans 2-4

	TIMING PLAN [1]															
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
LOCK DETECTOR
VEH RECALL
PED RECALL
MAX RECALL
SOFT RECALL
NO REST

MM-2-1-6 Phase Recall

- Lock Detector
 - Locking a detector input occurs when a detector input is "remembered" as a vehicle call even when it is no longer present
- Vehicle Recall
 - Vehicle recall places a demand for vehicle service on a phase by registering a call while the phase is in yellow or red intervals

TIMING PLAN [1]	
PHASE	12345678 90123456
LOCK DETECTOR
VEH RECALL
PED RECALL
MAX RECALL
SOFT RECALL
NO REST

MM-2-1-6 Phase Recall

- Ped Recall
 - Ped Recall places a demand for pedestrian service on a phase by registering a call while the phase is not in the pedestrian walk interval
- Max Recall
 - Places a continuous vehicle call on the phase
 - The phase times the maximum green time in effect during green
 - Disables the dynamic max operation

	TIMING PLAN [1]															
	PHASE															
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
LOCK DETECTOR
VEH RECALL
PED RECALL
MAX RECALL
SOFT RECALL
NO REST

MM-2-1-6 Phase Recall

- Soft Recall
 - Soft recall places a call on selected phase(s) when the controller goes to rest in other phases
- No Rest
 - Absent of detector calls, the controller automatically goes to the next phase that is allowed to rest

	TIMING PLAN [1]															
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
LOCK DETECTOR
VEH RECALL
PED RECALL
MAX RECALL
SOFT RECALL
NO REST

MM-2-1-7 Overlap

- The Overlap Timing Plans screen is used to configure advance or trailing vehicle overlap timing
- Advance
 - Timing begins with yellow of the terminating phase
 - If Advance Green time is greater than terminating phase Yellow Change plus Red Clearance, the controller is held in all red until the Advance Green time expires
 - GREEN WHEN NEXT phase goes green when Advance Green time expires.

TIMING PLAN [1]									v
START OF GREEN									
OVERLAP	A	B	C	D	E	F	G	H	
ADVANCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
DELAY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ADV PED	0	0	0	0	0	0	0	0	
OVERLAP	I	J	K	L	M	N	O	P	
ADVANCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
DELAY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ADV PED	0	0	0	0	0	0	0	0	
TRAILING									
OVERLAP	A	B	C	D	E	F	G	H	
GREEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
YELLOW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
OVERLAP	I	J	K	L	M	N	O	P	
GREEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
YELLOW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

MM-2-1-7 Overlap

- Delay
 - DELAY is used for delaying the start of the Vehicle Overlap
- Advance Ped
 - Delays the start of an overlap green when a pedestrian is active or about to become active on an included parent of that overlap
 - Commonly known as a Leading Pedestrian Interval (LPI) for overlaps, this behavior is similar to Overlap Delay, but only applies when there is a conflicting pedestrian

TIMING PLAN [1]									v
START OF GREEN									
OVERLAP	A	B	C	D	E	F	G	H	
ADVANCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DELAY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADV PED	0	0	0	0	0	0	0	0	0
OVERLAP	I	J	K	L	M	N	O	P	
ADVANCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DELAY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADV PED	0	0	0	0	0	0	0	0	0
TRAILING									
OVERLAP	A	B	C	D	E	F	G	H	
GREEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OVERLAP	I	J	K	L	M	N	O	P	
GREEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MM-2-1-7 Overlap

- Trailing
 - Trailing GREEN, YELLOW, and RED are used in conjunction with the TRAILING WHEN EXIT and TRAILING WHEN NEXT Overlap settings

TIMING PLAN [1]									v
START OF GREEN									
OVERLAP	A	B	C	D	E	F	G	H	
ADVANCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DELAY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADV PED	0	0	0	0	0	0	0	0	0
OVERLAP	I	J	K	L	M	N	O	P	
ADVANCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DELAY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADV PED	0	0	0	0	0	0	0	0	0
TRAILING									
OVERLAP	A	B	C	D	E	F	G	H	
GREEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OVERLAP	I	J	K	L	M	N	O	P	
GREEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MM-2-1-8 Phase Output

- Use this screen to configure a single load switch channel to serve a phase twice in the same sequence
- Double Serve
 - This lets the output of the selected phase control the output of the double serve phase

		TIMING PLAN [1]							
		DOUBLE				SERVE			
DBL SRV		1	2	3	4	5	6	7	8
WITH PH		0	0	0	0	0	0	0	0
DBL SRV		9	10	11	12	13	14	15	16
WITH PH		0	0	0	0	0	0	0	0

MM-2-2 Vehicle Overlap

- Vehicle overlaps associate a controller output to more than one phase
- This feature can help with traffic progression by letting a certain movement come on multiple times that would otherwise be restricted to serving once
- Additionally, an overlap can take the timing parameters of its parent phase or can be adjusted by letting the overlap lag its parent phase by a specified green, yellow change, and red clearance programmed in the overlap timing plan

MM-2-2 Vehicle Overlap

- Overlap
 - The Overlap type enables the protected, pedestrian protected, not overlap, trailing, leading, flashing, and advance green programming features with included phases

OVERLAP [A]	TYPE[OVERLAP]	v
	12345678 90123456	
INCLUDED PHASE
PROTECTED PHASE
INHIBIT WITH PED
INHIBIT WITH PHASE
INHIBIT WITH GREEN
TRAILING WHEN EXIT
TRAILING WHEN NEXT
TRAILING PHASE ALLOW
GREEN WHEN NEXT
	ABCDEFGH IJKLMN	OP
INHIBIT WITH OVERLAP

MM-2-2 Vehicle Overlap

- Function names were updated to be more descriptive:
 - PED PRTC INHIBIT WITH PED
 - NOT OVLP INHIBIT WITH PHASE
 - MODIFIER (-GRN/YEL) INHIBIT WITH GREEN
 - LAG X PH TRAILING WHEN EXIT
 - LAG 2 PH TRAILING WHEN NEXT
 - ADV GRN GREEN WHEN NEXT

OVERLAP [A]	TYPE[OVERLAP]	v
	12345678	90123456
INCLUDED PHASE
PROTECTED PHASE
INHIBIT WITH PED
INHIBIT WITH PHASE
INHIBIT WITH GREEN
TRAILING WHEN EXIT
TRAILING WHEN NEXT
TRAILING PHASE ALLOW
GREEN WHEN NEXT
	ABCDEFGH	IJKLMNOP
INHIBIT WITH OVERLAP

MM-2-2 Vehicle Overlap

- PPLT/FYA
 - Protected/Permissive Left Turns using the Flashing Yellow Arrow
- PPRT/FYA
 - Protected/Permissive Right Turns using the Flashing Yellow Arrow on a 4-section signal head
 - The flashing Yellow arrow, yellow clearance, and red clearance outputs for field wiring
 - The protected Green arrow will be provided by the programmed PROTECTED TURN output

OVERLAP [A]	TYPE [PPLT/FYA]		v
PROTECTED TURN	PHASE	1	
PERMISSIVE THROUGH	PHASE	2	
OUTPUT MODE	CH13 GRN OLP		
INHIBIT WITH PED	.....	
EARLY FYA ENABLE		NO	
SPECIAL FUNCTION	BIT DISABLE	0	

OVERLAP [A]	TYPE [PPRT/FYA]		v
PROTECTED TURN	PHASE	0	
PERMISSIVE THROUGH	PHASE	0	
INHIBIT WITH PED	.....	
EARLY FYA ENABLE		NO	
SPECIAL FUNCTION	BIT DISABLE	0	

MM-2-2 Vehicle Overlap

- Early FYA Enable
 - This disables red clearance timing when going from protected to permissive displays
- Special Function Bit Disable
 - This disables FYA by time of day in an Event Plan

OVERLAP [A]	TYPE [PPLT/FYA]	v
PROTECTED TURN	PHASE	1
PERMISSIVE THROUGH	PHASE	2
OUTPUT MODE	CH13 GRN OLP	
INHIBIT WITH PED	.....
EARLY FYA ENABLE		NO
SPECIAL FUNCTION	BIT DISABLE	0

MM-2-5 Power Start Up and Flash

- On the Power Start Up section, you specify phase and overlap startup, cycle phase overlaps, type of flash, minimum flash time, all red time, and sequence and timing plans
- Power Start Up phases begin timing after the flash and power start red times have been satisfied, or after an external start input
- On the Automatic Flash section, you specify entry phases, exit phases, overlaps, minimum flash time, and options such as wig/wag and colors to be used
- Automatic flash operation can be called via an Event Plan, external input, system command, or logic processor statements

MM-2-5 Power Start Up

- Flash Yellow
 - This reflects the phases that are physically wired to flash Yellow
- Start Phase
 - The Start Up Phase can indicate Green, Green with Walk, Yellow, or Red
- Start OL
 - The Start Overlap can indicate Green, Yellow, or Red
- Cycle OL
 - Enable or disable whether the Overlap is active when Cycle Phases is active

POWER START UP													v			
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
FLASH Y	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
START PH	.	G	.	.	.	G	.	.	.	.	.	.	.	.	.	.
START OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CYCLE OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FLASH MINIMUM TIME	0								SEQUENCE	1						
FLASH THROUGH CVM	NO								TIMING PL	0						
ALL RED TIME	6								CLEAR FL Y	NO						
AUTOMATIC FLASH																
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
ENTRY	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
WIG/WAG	.	X	.	X	.	X	.	X	.	.	.	.	.	X	.	.
COLOR	R	R	R	R	R	R	R	R	.	.	.	.	.	R	R	R
EXIT	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
WIG/WAG	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COLOR	Y	Y	Y	Y	.	.	.	.	.	.	.	.	.	.	.	.
FL THRU CVM	NO												NO			
MINIMUM RECALL	NO												NO			
CYCLE THRU PHASE	NO												NO			
MINIMUM FLASH	8												8			
EXIT FLASH	WALK												WALK			

MM-2-5 Power Start Up

- Flash Min Time
 - This interval times before all red time
- Flash Through CVM
 - Flash either through the Controller Voltage Monitor or Load Switches
- All Red Time
 - This interval times after flash time

POWER START UP																v
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
FLASH Y	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
START PH	.	G	.	.	.	G	.	.	.	.	.	.	.	.	.	.
START OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CYCLE OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FLASH MINIMUM TIME	0									SEQUENCE	1					
FLASH THROUGH CVM	NO									TIMING PL	0					
ALL RED TIME	6									CLEAR FL Y	NO					

AUTOMATIC FLASH																
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
ENTRY	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
WIG/WAG	.	X	.	X	.	X	.	X	.	.	.	.	.	X	.	.
COLOR	R	R	R	R	R	R	R	R	.	.	.	.	R	R	R	R
EXIT	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.

OVERLAP																
WIG/WAG	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
WIG/WAG	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COLOR	Y	Y	Y	Y	.	.	.	.	.	.	.	.	.	.	.	.

FL THRU CVM	NO
MINIMUM RECALL	NO
CYCLE THRU PHASE	NO
MINIMUM FLASH	8
EXIT FLASH	WALK

MM-2-5 Power Start Up

- Sequence
 - Selects sequence to run through one sequence cycle using internal minimum recalls (will service present demand)
 - O = NO Internal Calls on vehicle phases or ped. Phases during Startup
- Timing Plan
 - Selects Timing Plan for the CYCLE PHASES startup sequence
- Clear Flash to Yellow
 - Flashing yellow phases are cleared before phases are started as specified in START PHASE

POWER START UP														v		
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
FLASH Y	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
START PH	.	G	.	.	.	G	.	.	.	.	.	.	.	.	.	.
START OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CYCLE OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

FLASH MINIMUM TIME	0	SEQUENCE	1
FLASH THROUGH CVM	NO	TIMING PL	0
ALL RED TIME	6	CLEAR FL Y	NO

AUTOMATIC FLASH																
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
ENTRY	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
WIG/WAG	.	X	.	X	.	X	.	X	.	.	.	.	.	X	.	.
COLOR	R	R	R	R	R	R	R	R	.	.	.	.	.	R	R	R
EXIT	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.

OVERLAP																
WIG/WAG	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
WIG/WAG	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COLOR	Y	Y	Y	Y	.	.	.	.	.	.	.	.	.	.	.	.

FL THRU CVM	NO
MINIMUM RECALL	NO
CYCLE THRU PHASE	NO
MINIMUM FLASH	8
EXIT FLASH	WALK

MM-2-5 Automatic Flash

- Entry Phase
 - The phase controller enters and times minimum green, yellow, and red clearance before initiating automatic flash
- Color
 - The phase will flash yellow, red, or remain dark
- Exit
 - The first phases and interval that the controller displays when exiting

POWER START UP																	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	
FLASH Y	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
START PH	.	G	.	.	.	G	.	.	.	.	.	.	.	.	.	.
START OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CYCLE OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
FLASH MINIMUM TIME	0									SEQUENCE	1						
FLASH THROUGH CVM	NO									TIMING PL	0						
ALL RED TIME	6									CLEAR FL Y	NO						
AUTOMATIC FLASH																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	
ENTRY	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
WIG/WAG	.	X	.	X	.	X	.	X	.	.	.	.	.	X	.	.
COLOR	R	R	R	R	R	R	R	R	R	R	R	R
EXIT	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
WIG/WAG	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COLOR	Y	Y	Y	Y	.	.	.	.	.	.	.	.	.	.	.	.
FL THRU CVM	NO												NO				
MINIMUM RECALL	NO												NO				
CYCLE THRU PHASE	NO												NO				
MINIMUM FLASH	8												8				
EXIT FLASH	WALK												WALK				

MM-2-5 Automatic Flash

- Flash Through CVM
 - Flash through the cabinet by setting Controller Voltage Monitor
- Minimum Recall
 - Minimum recall placement on all active phases before entering automatic flash operation
- Cycle Through Phase
 - Let the controller service phases with demands that are between the active Phases and remote flash entry phases

POWER START UP																v
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
FLASH Y	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
START PH	.	G	.	.	.	G	.	.	.	.	.	.	.	.	.	.
START OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CYCLE OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FLASH MINIMUM TIME										0	SEQUENCE				1	
FLASH THROUGH CVM										NO	TIMING PL				0	
ALL RED TIME										6	CLEAR FL Y				NO	
AUTOMATIC FLASH																
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
ENTRY	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
WIG/WAG	.	X	.	X	.	X	.	X	.	.	.	.	.	X	.	.
COLOR	R	R	R	R	R	R	R	R	.	.	.	.	.	R	R	R
EXIT	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
WIG/WAG	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COLOR	Y	Y	Y	Y	.	.	.	.	.	.	.	.	.	.	.	.
FL THRU CVM										NO						
MINIMUM RECALL										NO						
CYCLE THRU PHASE										NO						
MINIMUM FLASH										8						
EXIT FLASH										WALK						

MM-2-5 Automatic Flash

- Minimum Flash
 - Minimum time in seconds that the controller must remain in automatic or remote flash before it is allowed to exit
- Exit Flash
 - Intervals that the exit phases will start in when exiting automatic flash

POWER START UP																
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
FLASH Y	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
START PH	.	G	.	.	.	G	.	.	.	.	.	.	.	.	.	.
START OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CYCLE OL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FLASH MINIMUM TIME							0	SEQUENCE							1	
FLASH THROUGH CVM							NO	TIMING PL							0	
ALL RED TIME							6	CLEAR FL Y							NO	
AUTOMATIC FLASH																
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
ENTRY	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
WIG/WAG	.	X	.	X	.	X	.	X	.	.	.	.	.	X	.	.
COLOR	R	R	R	R	R	R	R	R	.	.	.	.	.	R	R	R
EXIT	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
WIG/WAG	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COLOR	Y	Y	Y	Y	.	.	.	.	.	.	.	.	.	.	.	.
FL THRU CVM													NO			
MINIMUM RECALL													NO			
CYCLE THRU PHASE													NO			
MINIMUM FLASH													8			
EXIT FLASH													WALK			

MM-2-6 Controller Phase Options

- The Controller Phase Options screen lets you configure traffic and pedestrian movements for phases in use at an intersection
- Select MM-2-6 to configure phase criteria to accommodate conditional services, vehicle passage time, pedestrian features, pre-timed options, and more

MM-2-6 Controller Phase Options

- The following Menus in ASC/3 were merged into MM-2-6 of EOS
 - MM-1-1-4 Simultaneous Gap Phases
 - MM-1-2 Phases in Use & Exclusive Ped
 - MM-2-6-1 Controller Options
 - MM-2-7 Pre-timed

CONTROLLER PHASE OPTIONS		v
PHASES IN USE	12345678 90123456	
DUAL ENTRY	12345678	.....
SIMULTANEOUS GAP	.....	.....
LOCK PHASE NEXT	12345678 90123456	
COND SERVICE TO	.....	.....
COND SERVICE FROM	.....	.....
LRT/BRT PHASE	.....	.....
PRE GREEN CLEAR	.....	.....
2 SECTION SIGNAL	.....	.....
ADV WARN WIG/WAG	.....	.....
PASSAGE AFTER INIT	.....	.....
HAWK PHASE	.....	.....
DARK SIGNAL	12345678 90123456	
GUARANTEED PASSAGE	.....	.....
EXCLUSIVE PED	.....	.....
REST IN WALK	.....	.....
PED RESERVICE	.....	.....
FLASHING WALK	.....	.....
PED CLEAR THRU YEL	.....	.....
PED CLEAR THRU RED	.....	.....
PED OMIT	.....	.....
UNIT RED REVERT		2.0
PED CLEAR PROTECT		NO
MUTCD 3 SEC DONT WALK		YES
ENABLE PRETIMED MODE		NO
FREE INPUT PRETIMED OFF		NO
PRETIMED	.....	.....
NON-ACTUATED I	.2...6..	.....
NON-ACTUATED II	...4...8	.....
FLASH GREEN	1 2 3 4 5 6 7 8	
	
FLASH GREEN	9 10 11 12 13 14 15 16	
	

MM-2-6 Controller Phase Options

- Phases In Use
 - Phase to be made active, if it is included in the Controller Sequence
- Dual Entry
 - One phase in each ring must be in operation
 - A call is automatically placed on a compatible dual entry phase in that ring

CONTROLLER PHASE OPTIONS		v
PHASES IN USE	12345678 90123456	
DUAL ENTRY	12345678	.....
SIMULTANEOUS GAP	.....	.....
LOCK PHASE NEXT	12345678 90123456	
COND SERVICE TO	.....	.....
COND SERVICE FROM	.....	.....
LRT/BRT PHASE	.....	.....
PRE GREEN CLEAR	.....	.....
2 SECTION SIGNAL	.....	.....
ADV WARN WIG/WAG	.....	.....
PASSAGE AFTER INIT	.....	.....
HAWK PHASE	.....	.....
DARK SIGNAL	12345678 90123456	
GUARANTEED PASSAGE	.....	.....
EXCLUSIVE PED	.....	.....
REST IN WALK	.....	.....
PED RESERVICE	.....	.....
FLASHING WALK	.....	.....
PED CLEAR THRU YEL	.....	.....
PED CLEAR THRU RED	.....	.....
PED OMIT	.....	.....
UNIT RED REVERT		2.0
PED CLEAR PROTECT		NO
MUTCD 3 SEC DONT WALK		YES
ENABLE PRETIMED MODE		NO
FREE INPUT PRETIMED OFF		NO
PRETIMED	.....	.....
NON-ACTUATED I	.2...6..	.....
NON-ACTUATED II	...4...8	.....
FLASH GREEN	1 2 3 4 5 6 7 8	
	
FLASH GREEN	9 10 11 12 13 14 15 16	
	

MM-2-6 Controller Phase Options

- Simultaneous Gap
 - Phase should wait until simultaneously reaching a point of being committed to terminate before Green timing termination starts on other timing Simultaneous Gap Phases in the same concurrent group
- Lock Phase Next
 - Phase on which the controller can't change a next phase determination
 - Late calls received during the YEL/RED will be served next

CONTROLLER PHASE OPTIONS		v
PHASES IN USE	12345678 90123456	
DUAL ENTRY	12345678	
SIMULTANEOUS GAP	.....
LOCK PHASE NEXT	12345678 90123456	
COND SERVICE TO	.....
COND SERVICE FROM	.....
LRT/BRT PHASE	.....
PRE GREEN CLEAR	.....
2 SECTION SIGNAL	.....
ADV WARN WIG/WAG	.....
PASSAGE AFTER INIT	.....
HAWK PHASE	.....
DARK SIGNAL	12345678 90123456	
GUARANTEED PASSAGE	.....
EXCLUSIVE PED	.....
REST IN WALK	.....
PED RESERVICE	.....
FLASHING WALK	.....
PED CLEAR THRU YEL	.....
PED CLEAR THRU RED	.....
PED OMIT	.....
UNIT RED REVERT	2.0	
PED CLEAR PROTECT	NO	
MUTCD 3 SEC DONT WALK	YES	
ENABLE PRETIMED MODE	NO	
FREE INPUT PRETIMED OFF	NO	
PRETIMED	.....
NON-ACTUATED I	.2...6..	
NON-ACTUATED II	...4...8	
FLASH GREEN	1 2 3 4 5 6 7 8	
	
FLASH GREEN	9 10 11 12 13 14 15 16	
	

MM-2-6 Controller Phase Options

- LRT/BRT
 - Light Rail programming
 - May operate as 2 or 3 section signal
- Adv Warning WIG/WAG
 - Advance warning signals for high-speed approach intersection
 - This can help eliminate the dilemma zone
 - This feature is also programmed for HAWK CROSSING functionality

CONTROLLER PHASE OPTIONS		v
PHASES IN USE	12345678	90123456
DUAL ENTRY	12345678	.....
SIMULTANEOUS GAP	.....	.....
LOCK PHASE NEXT	12345678	90123456
COND SERVICE TO	.....	.....
COND SERVICE FROM	.....	.....
LRT/BRT PHASE	.....	.....
PRE GREEN CLEAR	.....	.....
2 SECTION SIGNAL	.....	.....
ADV WARN WIG/WAG	.....	.....
PASSAGE AFTER INIT	.....	.....
HAWK PHASE	.....	.....
DARK SIGNAL	12345678	90123456
GUARANTEED PASSAGE	.....	.....
EXCLUSIVE PED	.....	.....
REST IN WALK	.....	.....
PED RESERVICE	.....	.....
FLASHING WALK	.....	.....
PED CLEAR THRU YEL	.....	.....
PED CLEAR THRU RED	.....	.....
PED OMIT	.....	.....
UNIT RED REVERT		2.0
PED CLEAR PROTECT		NO
MUTCD 3 SEC DONT WALK		YES
ENABLE PRETIMED MODE		NO
FREE INPUT PRETIMED OFF		NO
PRETIMED	.....	.....
NON-ACTUATED I	.2...6..	.....
NON-ACTUATED II	...4...8	.....
FLASH GREEN	1 2 3 4 5 6 7 8	
	
FLASH GREEN	9 10 11 12 13 14 15 16	
	

MM-2-6 Controller Phase Options

- HAWK Phase
 - The phase to control the HAWK crossing vehicle movement
- Dark Signal
 - When enabled, the HAWK vehicle phase green output is dark by default, and is active when the HAWK vehicle yellow or WIG/WAG outputs are not solid or flashing

CONTROLLER PHASE OPTIONS		v
PHASES IN USE	12345678	90123456
DUAL ENTRY	12345678	.....
SIMULTANEOUS GAP	.....	.....
LOCK PHASE NEXT	12345678	90123456
COND SERVICE TO	.....	.....
COND SERVICE FROM	.....	.....
LRT/BRT PHASE	.....	.....
PRE GREEN CLEAR	.....	.....
2 SECTION SIGNAL	.....	.....
ADV WARN WIG/WAG	.....	.....
PASSAGE AFTER INIT	.....	.....
HAWK PHASE	.....	.....
DARK SIGNAL	12345678	90123456
GUARANTEED PASSAGE	.....	.....
EXCLUSIVE PED	.....	.....
REST IN WALK	.....	.....
PED RESERVICE	.....	.....
FLASHING WALK	.....	.....
PED CLEAR THRU YEL	.....	.....
PED CLEAR THRU RED	.....	.....
PED OMIT	.....	.....
UNIT RED REVERT		2.0
PED CLEAR PROTECT		NO
MUTCD 3 SEC DONT WALK		YES
ENABLE PRETIMED MODE		NO
FREE INPUT PRETIMED OFF		NO
PRETIMED	.....	.....
NON-ACTUATED I	.2...6..	.....
NON-ACTUATED II	...4...8	.....
FLASH GREEN	1 2 3 4 5 6 7 8	
	
FLASH GREEN	9 10 11 12 13 14 15 16	
	

MM-2-6 Controller Phase Options

- Exclusive Ped
 - In exclusive pedestrian timing, the selected phase times only pedestrian intervals without concurrent vehicle movement intervals
- Rest In Walk
 - The phase with an actuated pedestrian call can rest at end of the pedestrian walk interval until a serviceable conflicting call is received

CONTROLLER PHASE OPTIONS		v
PHASES IN USE	12345678 90123456	
DUAL ENTRY	12345678	.....
SIMULTANEOUS GAP	.....	.....
LOCK PHASE NEXT	12345678 90123456	
COND SERVICE TO	.....	.....
COND SERVICE FROM	.....	.....
LRT/BRT PHASE	.....	.....
PRE GREEN CLEAR	.....	.....
2 SECTION SIGNAL	.....	.....
ADV WARN WIG/WAG	.....	.....
PASSAGE AFTER INIT	.....	.....
HAWK PHASE	.....	.....
DARK SIGNAL	12345678 90123456	
GUARANTEED PASSAGE	.....	.....
EXCLUSIVE PED	.....	.....
REST IN WALK	.....	.....
PED RESERVICE	.....	.....
FLASHING WALK	.....	.....
PED CLEAR THRU YEL	.....	.....
PED CLEAR THRU RED	.....	.....
PED OMIT	.....	.....
UNIT RED REVERT		2.0
PED CLEAR PROTECT		NO
MUTCD 3 SEC DONT WALK		YES
ENABLE PRETIMED MODE		NO
FREE INPUT PRETIMED OFF		NO
PRETIMED	.....	.....
NON-ACTUATED I	.2...6..	.....
NON-ACTUATED II	...4...8	.....
FLASH GREEN	1 2 3 4 5 6 7 8	
FLASH GREEN	. . . . .
FLASH GREEN	9 10 11 12 13 14 15 16	
FLASH GREEN	. . . . .

MM-2-6 Controller Phase Options

- Ped Clear Thru Yellow
 - The pedestrian clearance time remains the same, but the last portion is timed during the yellow change interval
- Ped Clear Thru Red
 - The pedestrian clearance time remains the same, but the last portion is timed during the yellow change and red clearance intervals

CONTROLLER PHASE OPTIONS		v
PHASES IN USE	12345678 90123456	
DUAL ENTRY	12345678	.....
SIMULTANEOUS GAP	.....	.....
LOCK PHASE NEXT	12345678 90123456	
COND SERVICE TO	.....	.....
COND SERVICE FROM	.....	.....
LRT/BRT PHASE	.....	.....
PRE GREEN CLEAR	.....	.....
2 SECTION SIGNAL	.....	.....
ADV WARN WIG/WAG	.....	.....
PASSAGE AFTER INIT	.....	.....
HAWK PHASE	.....	.....
DARK SIGNAL	12345678 90123456	
GUARANTEED PASSAGE	.....	.....
EXCLUSIVE PED	.....	.....
REST IN WALK	.....	.....
PED RESERVICE	.....	.....
FLASHING WALK	.....	.....
PED CLEAR THRU YEL	.....	.....
PED CLEAR THRU RED	.....	.....
PED OMIT	.....	.....
UNIT RED REVERT		2.0
PED CLEAR PROTECT		NO
MUTCD 3 SEC DONT WALK		YES
ENABLE PRETIMED MODE		NO
FREE INPUT PRETIMED OFF		NO
PRETIMED	.....	.....
NON-ACTUATED I	.2...6..	.....
NON-ACTUATED II	...4...8	.....
FLASH GREEN	1 2 3 4 5 6 7 8	
	
FLASH GREEN	9 10 11 12 13 14 15 16	
	

MM-2-6 Controller Phase Options

- Unit Red Revert
 - The minimum red revert time for each phase
- Ped Clear Protect
 - The controller times the Pedestrian Clearance interval on all phases with pedestrian clearance time programmed and ignores manual advance inputs
- MUTCD 3s DW
 - DON'T WALK indicator active for at least three seconds before any possible conflicting vehicles are released

CONTROLLER PHASE OPTIONS		v
PHASES IN USE	12345678	90123456
DUAL ENTRY	1234567	.....
SIMULTANEOUS GAP	.....	.....
LOCK PHASE NEXT	12345678	90123456
COND SERVICE TO	.....	.....
COND SERVICE FROM	.....	.....
LRT/BRT PHASE	.....	.....
PRE GREEN CLEAR	.....	.....
2 SECTION SIGNAL	.....	.....
ADV WARN WIG/WAG	.....	.....
PASSAGE AFTER INIT	.....	.....
HAWK PHASE	.....	.....
DARK SIGNAL	12345678	90123456
GUARANTEED PASSAGE	.....	.....
EXCLUSIVE PED	.....	.....
REST IN WALK	.....	.....
PED RESERVICE	.....	.....
FLASHING WALK	.....	.....
PED CLEAR THRU YEL	.....	.....
PED CLEAR THRU RED	.....	.....
PED OMIT	.....	.....
UNIT RED REVERT	2.0	
PED CLEAR PROTECT	NO	
MUTCD 3 SEC DONT WALK	YES	
ENABLE PRETIMED MODE	NO	
FREE INPUT PRETIMED OFF	NO	
PRETIMED	.....	.....
NON-ACTUATED I	.2...6..	.....
NON-ACTUATED II	...4...8	.....
FLASH GREEN	1 2 3 4 5 6 7 8	
	
FLASH GREEN	9 10 11 12 13 14 15 16	
	

MM 2-7 Sequence

- The Sequence submenu provides three options for working with phases and timing their order
- Select MM-2-7 to use the Sequence feature to view or configure Controller Sequence options, Backup Prevent Plan, and No Serve features
- **IMPORTANT** • Do *not* change the controller sequencing while the controller is in operation on the street. Be sure the controller is in flash or on the bench before you change the sequencing

MM 2-7 Sequence

- Sequence
 - Define and manage ring assignment and barriers
- Backup Prevent
 - Define backup phases and manage backup plans you create
- No Serve
 - Define and manage unserved sequences

SEQUENCE SUBMENU

1. SEQUENCE
2. BACKUP PREVENT
3. NO SERVE

MM 2-7-1 Sequence

- Sequence
 - In Barrier Mode, phase order-of-rotation, ring assignment, and barrier position (showing compatibility) are all controlled by data
 - This feature is used for setting up Lead-Lag sequences

```
CONTROLLER SEQUENCE [ 1] >
  B - B - B - B - B - -
RING 1 | 1 2| 3 4| 9 10|13 14| . .
RING 2 | 5 6| 7 8|11 12|15 16| . .
RING 3 | . .| . .| . .| . .| . .
RING 4 | . .| . .| . .| . .| . .

INDEPENDENT RING GROUP NO
HARDWARE ALT SEQUENCE NO
SEQUENCE COMMANDS .
```

```
CONTROLLER SEQUENCE [ 2] >
  B - B - B - B - B - -
RING 1 | 2 1| 3 4|10 9|13 14| . .
RING 2 | 5 6| 7 8|11 12|15 16| . .
RING 3 | . .| . .| . .| . .| . .
RING 4 | . .| . .| . .| . .| . .

INDEPENDENT RING GROUP NO
HARDWARE ALT SEQUENCE NO
SEQUENCE COMMANDS .
```

MM 2-7-1 Sequence

- Independent Ring Group (Global Option)
 - Phases in Ring 3 and 4 will cross the barrier independent of phases in Ring 1 and 2
- Sequence Commands
 - COPY TO HIGHER SEQUENCE
 - SELECT DEFAULT SEQUENCE
 - Only available when SEQ 1 is selected
 - SEL CUSTOM DFT SEQUENCE
 - Only available when SEQ 1 is selected

```
CONTROLLER SEQUENCE [ 1 ] >
```

	B	-	B	-	B	-	B	-	B	-	-				
RING 1	|	1	2	|	3	4	|	9	10	|	13	14	|	.	.
RING 2	|	5	6	|	7	8	|	11	12	|	15	16	|	.	.
RING 3	
RING 4	

INDEPENDENT RING GROUP	NO
HARDWARE ALT SEQUENCE	NO
SEQUENCE COMMANDS	.

MM 2-7-2 Backup Prevent

- Rest Phase
 - When the specified phase is active and at rest, the selected backup PREVENT METHOD is applied when the controller attempts performing a backup on the programmed BACKUP PHASE(S)
- Backup Phase
 - The phase(s) on which the PREVENT METHOD applies when the controller is attempts to backup in the sequence from the REST PHASE

```
BACKUP PREVENT PLAN [1] v
REST PHASE  BACKUP PHASE(S)  PREVENT METHOD  CALL PHASE
0           12345678 90123456       0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
0           .....          .....          0             0
```


MM 2-7-2 Backup Prevent

- Prevent Method
 - All Red
 - Terminates all phases through “all red” state
 - Inhibit
 - Never terminates the Rest Phase to back up and serve the Backup Phase
 - Call – L
 - A locked call is placed on the Call Phase and is served before it backs up from the Rest Phase to the Backup Phase
 - Call – N
 - A non-locking call is placed on the Call Phase and is served before it backs up from the Rest Phase to the Backup Phase

BACKUP PREVENT PLAN [1]										v								
REST	BACKUP PHASE(S)								PREVENT	CALL								
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	METHOD	PHASE
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0

MM 2-7-2 Backup Prevent

- Backup Prevent by TOD
 - Select the desired Backup Prevent Plan in MM-5-2

```
EVENT PLAN [ 1]          TYPE[  AUTO]  v
TIMING PLAN              0 VEH DETECTOR PLAN 0
SEQUENCE                 0 VEH DET DIAG PLN  0
SCP STRATEGY PLAN       0 PED DET DIAG PLN  0
SCP DET PLAN             0 DET LOG              NONE
BACKUP PVNT PLAN        0 RED REST              NO
SYS OVERRIDE             NO EXIT OPTION         OFF
```

MM 2-7-3 No Serve

- Define and manage unserved sequences
- Select Phases that can never serve together
- Feature was not available in ASC/3 software

NO SERVE														V	
	NO SERVE PHASES							SEQUENCES							
PHS	12345678	90123456	12345678	90123456	12345678	90123456		12345678	90123456	12345678	90123456				
0	
0	
0	
0	
0	
0	
0	
0	
0	
0	
0	
0	
0	
0	

MM 2-7-3 No Serve

- Phase
 - The phase that is not allowed to serve together in the same concurrent group
- No Serve Phases
 - The phase(s) that should not serve with the corresponding programmed PHASE
- Sequence
 - The sequence that should not serve with the corresponding programmed PHASE

NO SERVE

	NO SERVE PHASES								SEQUENCES							
PHS	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0

MM 2-8 Phase Movements

- Phase Heading
 - Set the movement of phases
- Phase Movement Turns
 - Turn direction of phase movements include any combination of:
 - L = Left
 - LT = Left Through
 - LR = Left Right
 - LTR = Left Through Right
 - T = Through
 - R = Right
 - TR = Through Right

PHASE MOVEMENTS								
PHASE	1	2	3	4	5	6	7	8
HEADING	N	S	E	W	S	N	W	E
TURNS	L--	-T-	L--	-T-	L--	-T-	L--	-T-
PHASE	9	10	11	12	13	14	15	16
HEADING	N	N	N	N	N	N	N	N
TURNS	---	---	---	---	---	---	---	---

MM 2-8 Phase Movements

- Use this screen to configure the movement of a phase, specifying the compass direction of a vehicle as it enters the intersection, as well as turn directions of the phase movement
- This feature is used for remote monitoring and management through ATMS (Centracs) and the graphical user interface