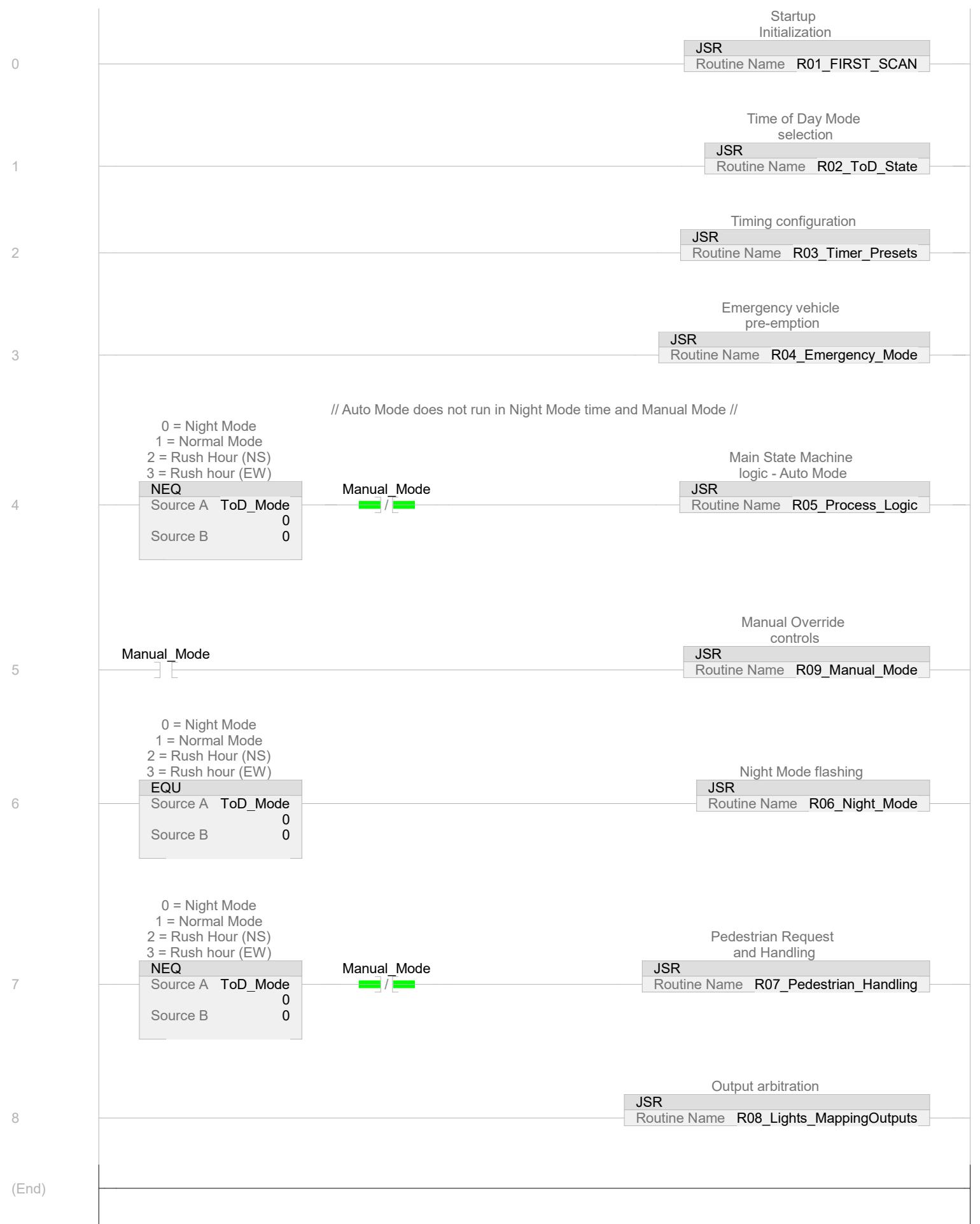


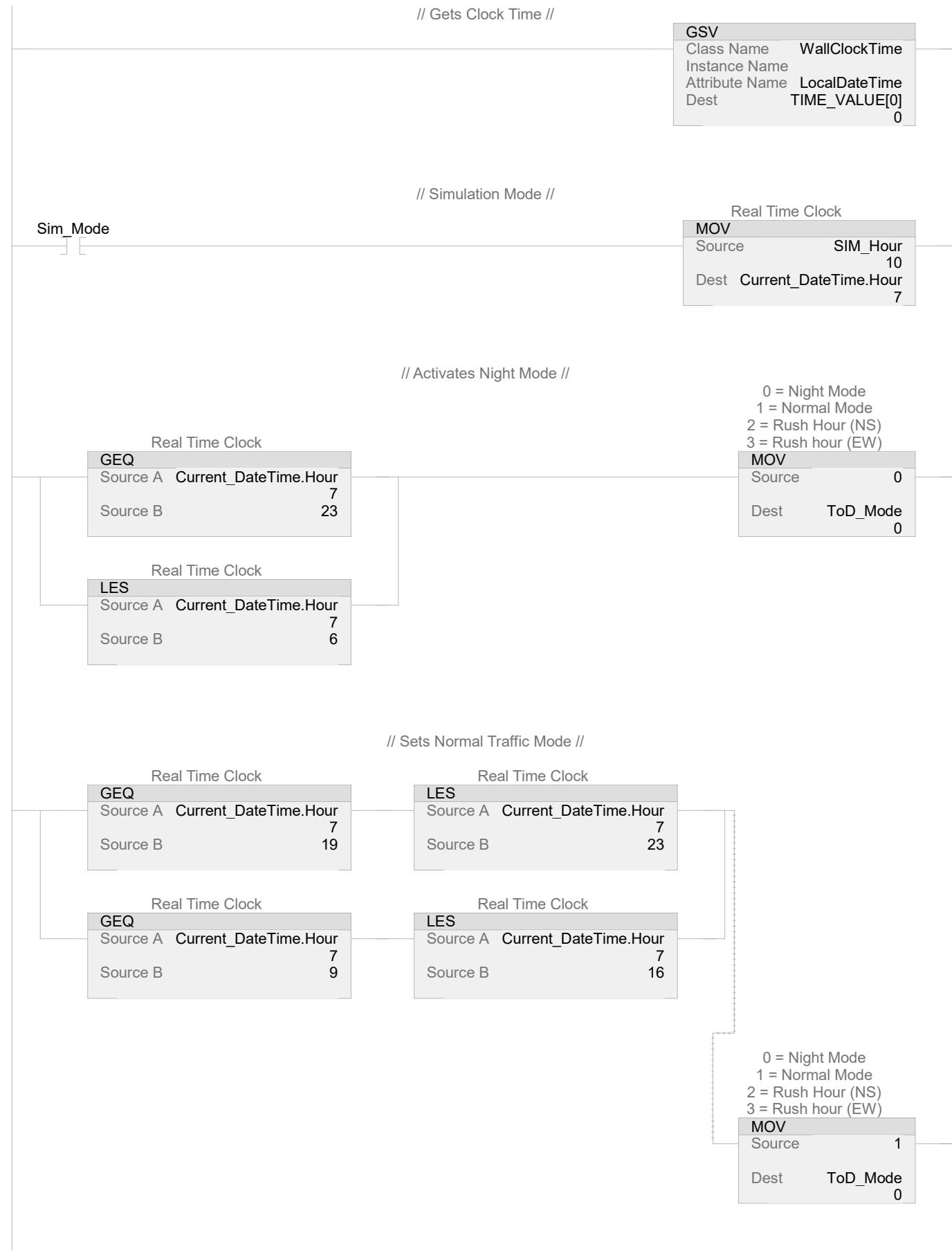
MainRoutine - Ladder Diagram

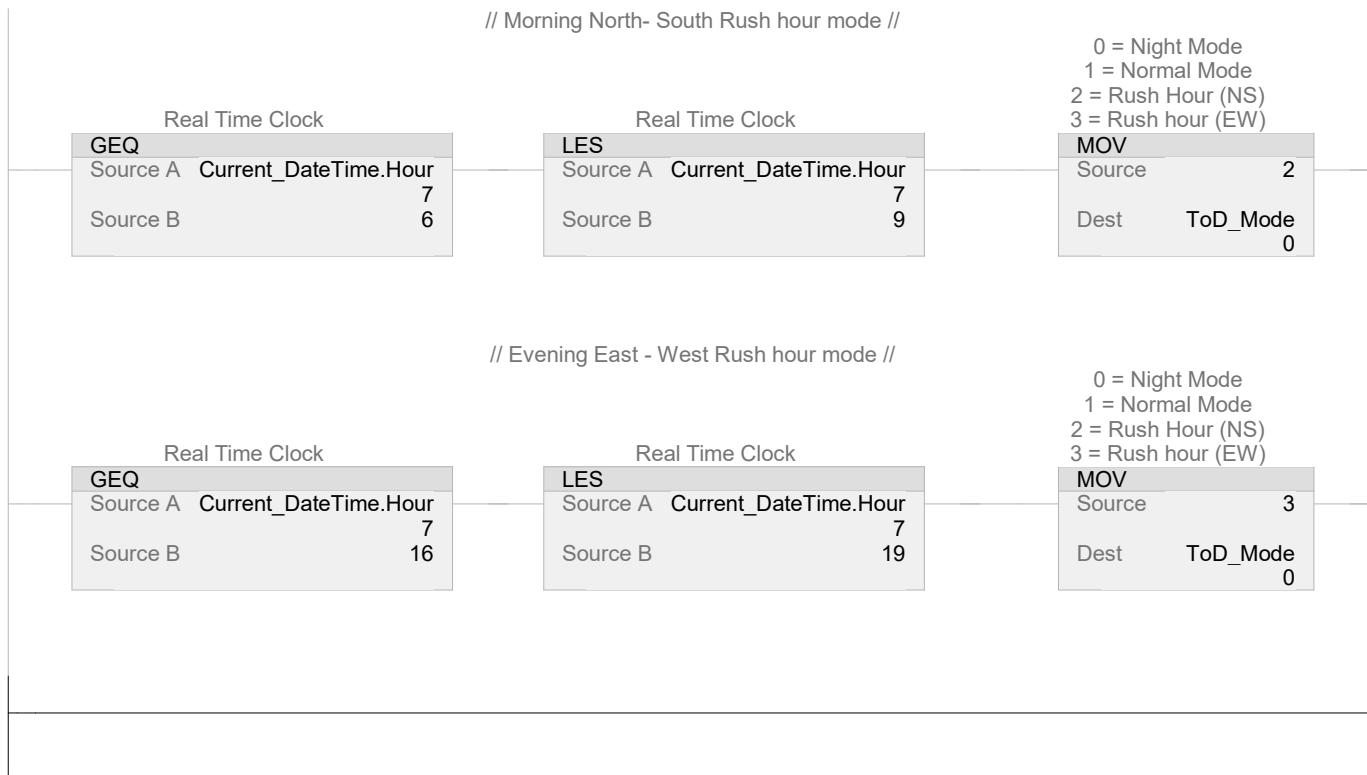
TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 9



```
1 // This Routine sets Current state 3 (all red buffer) when PLC powers up //
2
3 IF S:FS
4     THEN CURRENT_STATE :=3;
5 end_if;
```

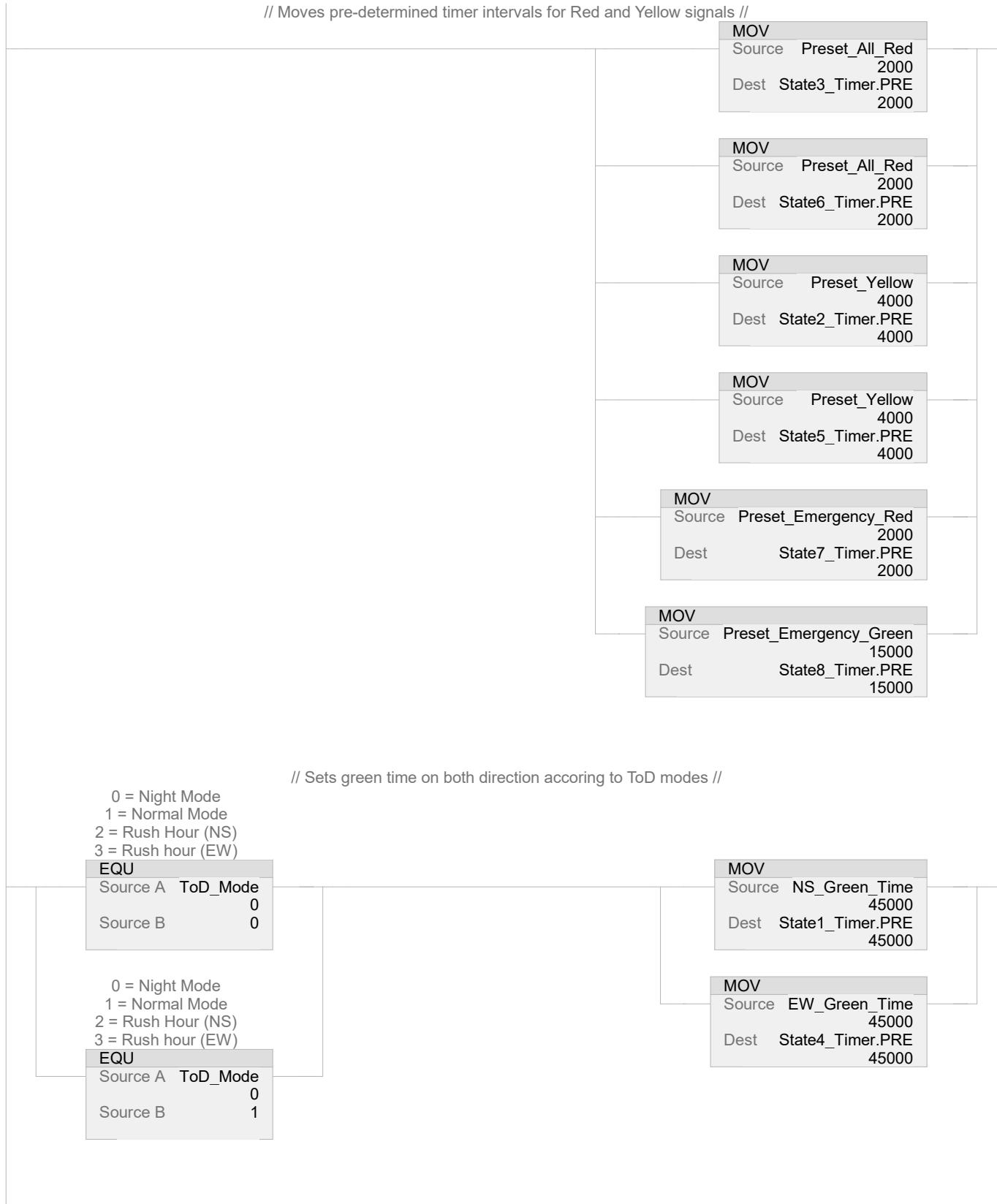




R03_Timer_Presets - Ladder Diagram

TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 4



TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 4

// Rush hour green time duration for each direction //

- 0 = Night Mode
- 1 = Normal Mode
- 2 = Rush Hour (NS)
- 3 = Rush hour (EW)

EQU

Source A	ToD_Mode
	0
Source B	2

MOV

Source	Rush_Green_Time
	60000
Dest	State1_Timer.PRE
	45000

MOV

Source	EW_Green_Time
	45000
Dest	State4_Timer.PRE
	45000

- 0 = Night Mode
- 1 = Normal Mode
- 2 = Rush Hour (NS)
- 3 = Rush hour (EW)

EQU

Source A	ToD_Mode
	0
Source B	3

MOV

Source	Rush_Green_Time
	60000
Dest	State4_Timer.PRE
	45000

MOV

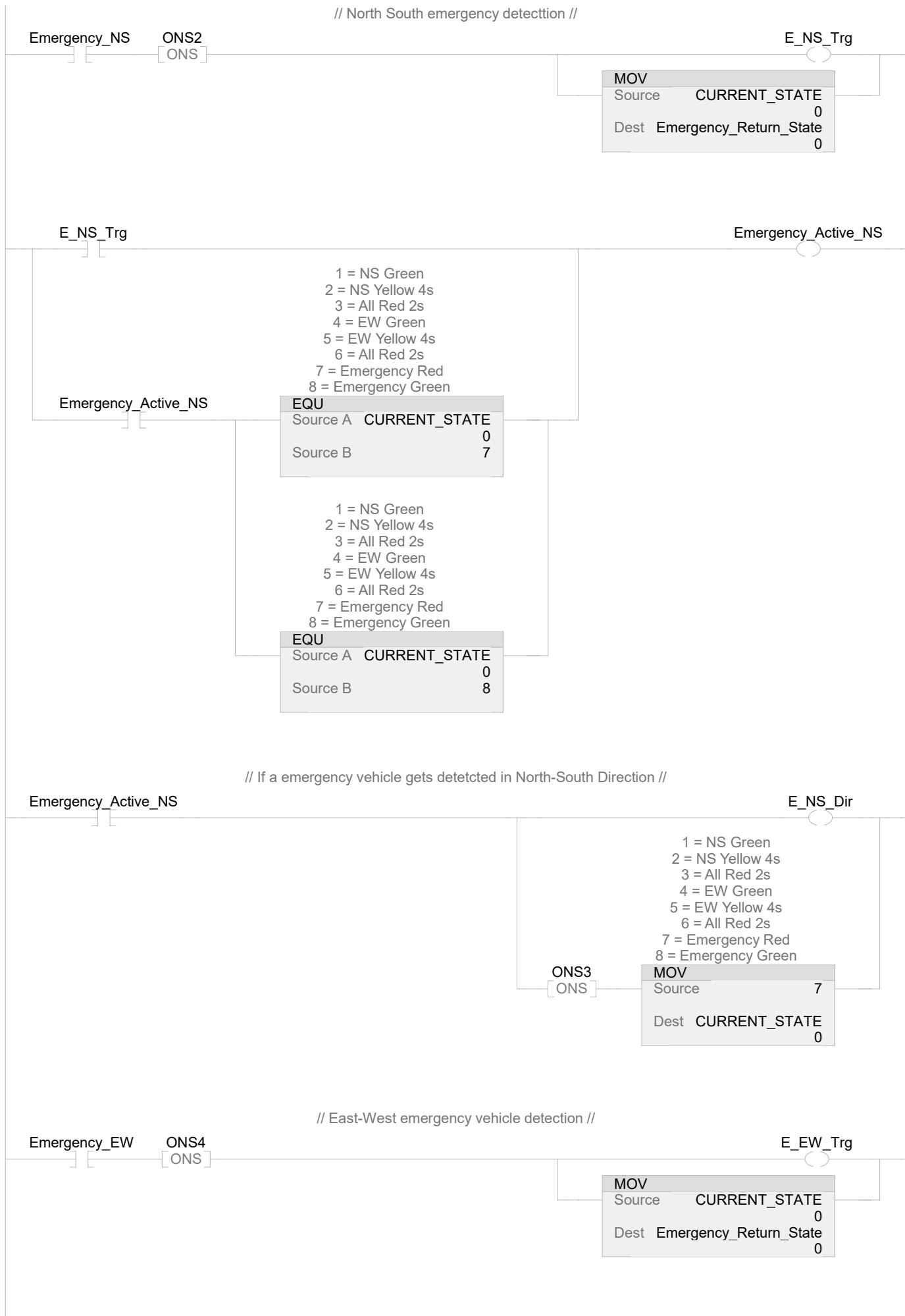
Source	NS_Green_Time
	45000
Dest	State1_Timer.PRE
	45000

(End)

R04_Emergency_Mode - Ladder Diagram

TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 14

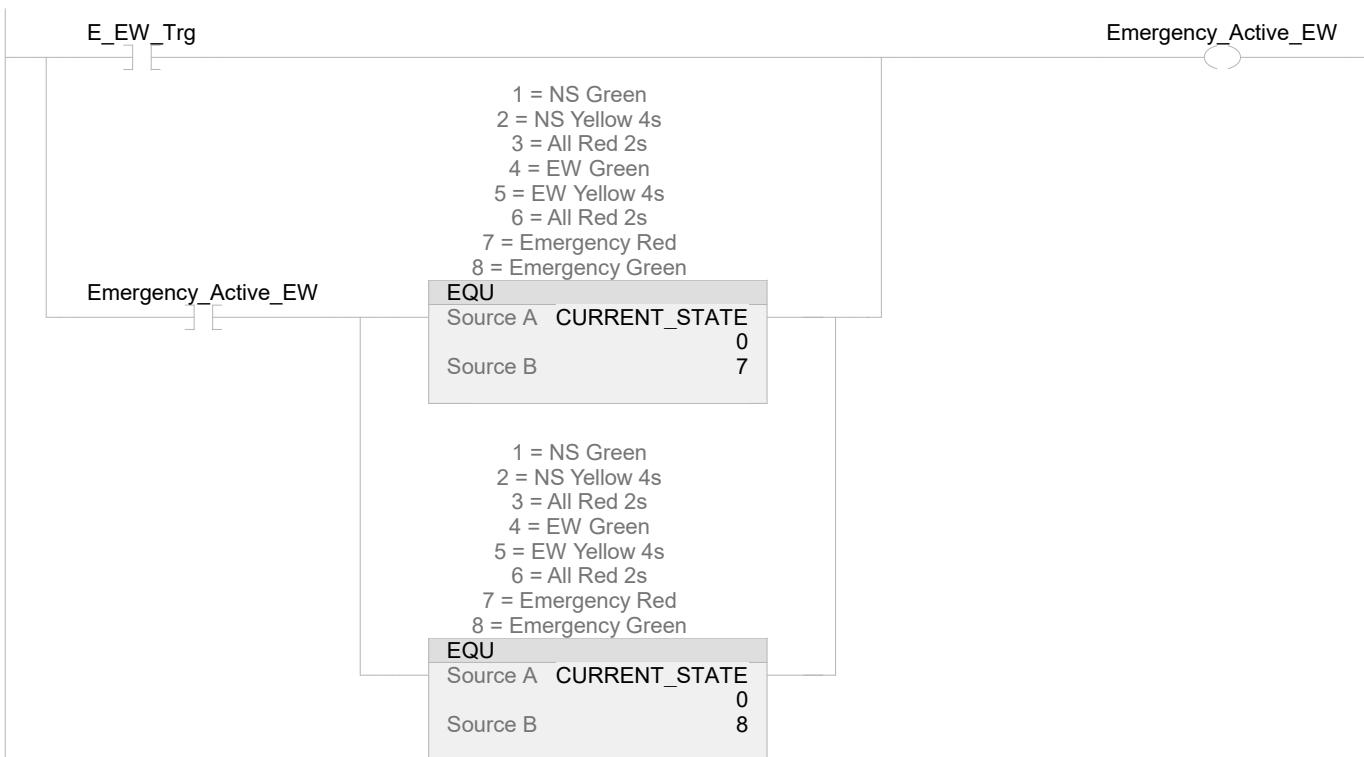


R04_Emergency_Mode - Ladder Diagram

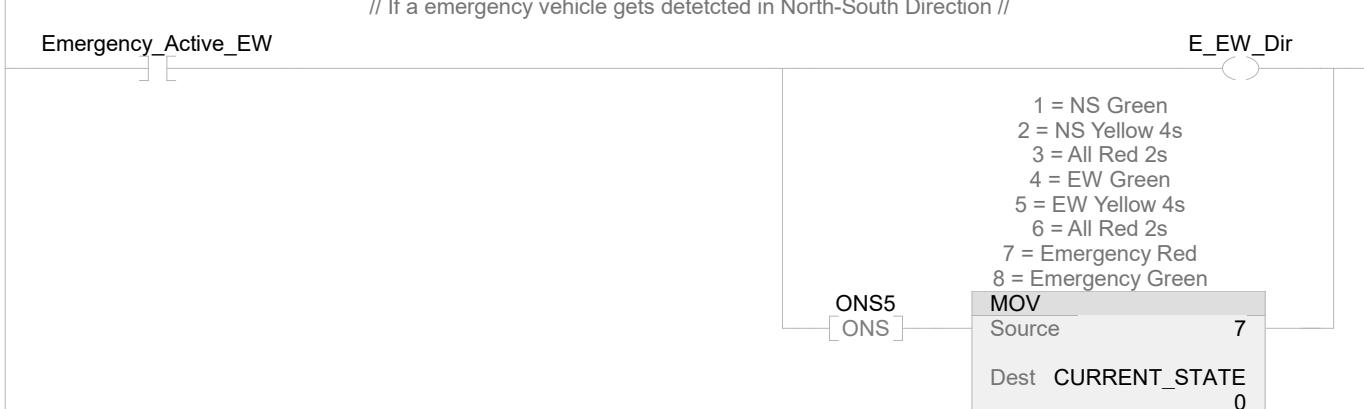
TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 14

4



5



6



7



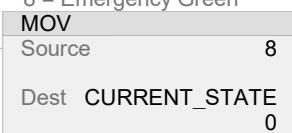
R04_Emergency_Mode - Ladder Diagram

TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 14

State7_Timer.DN

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green



1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green



// North-South emergency vehicle passing green //

State8_Timer.EN E_NS_Dir



// East-West emergency vehicle passing green //

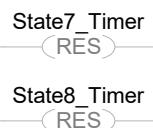
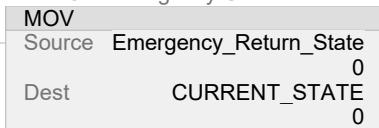
State8_Timer.EN E_EW_Dir



// Returns to previous normal state before emergency //

State8_Timer.DN

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

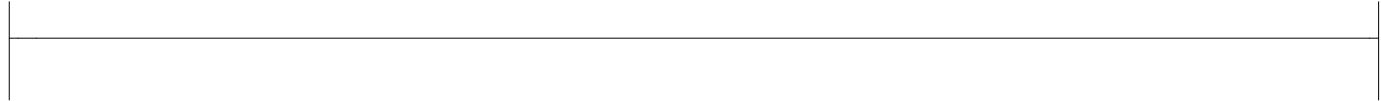


Emergency_Active_NS

Emergency_Active

Emergency_Active_EW

(End)



R05_Process_Logic - Ladder Diagram

TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 23

// state machine process logic //

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

EQU

Source A	CURRENT_STATE	0
Source B		3

TON

Timer	State3_Timer
Preset	2000
Accum	0

// Buffer Red and also sets all red in case of Signal conflict //

State3_Timer.EN

Auto_All_RED

State6_Timer.EN

Signal_Conflict

State3_Timer.DN

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

MOV

Source	4
Dest	CURRENT_STATE
	0

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

EQU

Source A	CURRENT_STATE	0
Source B		4

TON

Timer	State4_Timer
Preset	45000
Accum	0

State4_Timer.EN

Auto_NS_RED

State5_Timer.EN

State4_Timer.EN

Auto_EW_Green

R05_Process_Logic - Ladder Diagram

TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 23

State4_Timer.DN

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

MOV
 Source 5
 Dest CURRENT_STATE 0

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

EQU
 Source A CURRENT_STATE 0
 Source B 5

TON
 Timer State5_Timer
 Preset 4000
 Accum 0

State5_Timer.EN

Auto_EW_Yellow

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

MOV
 Source 6
 Dest CURRENT_STATE 0

State5_Timer.DN

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

EQU
 Source A CURRENT_STATE 0
 Source B 6

TON
 Timer State6_Timer
 Preset 2000
 Accum 0

State6_Timer.DN

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

MOV
 Source 1
 Dest CURRENT_STATE 0

R05_Process_Logic - Ladder Diagram

TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 23

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

EQU

Source A	CURRENT_STATE	0
Source B		1

TON		
Timer	State1_Timer	
Preset	45000	
Accum	0	



State1_Timer.EN

Auto_NS_Green

State1_Timer.EN

Auto_EW_RED

State2_Timer.EN

State1_Timer.DN

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

MOV		
Source	2	
Dest	CURRENT_STATE	0

1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

EQU

Source A	CURRENT_STATE	0
Source B		2

TON		
Timer	State2_Timer	
Preset	4000	
Accum	0	



State2_Timer.EN

Auto_NS_Yellow

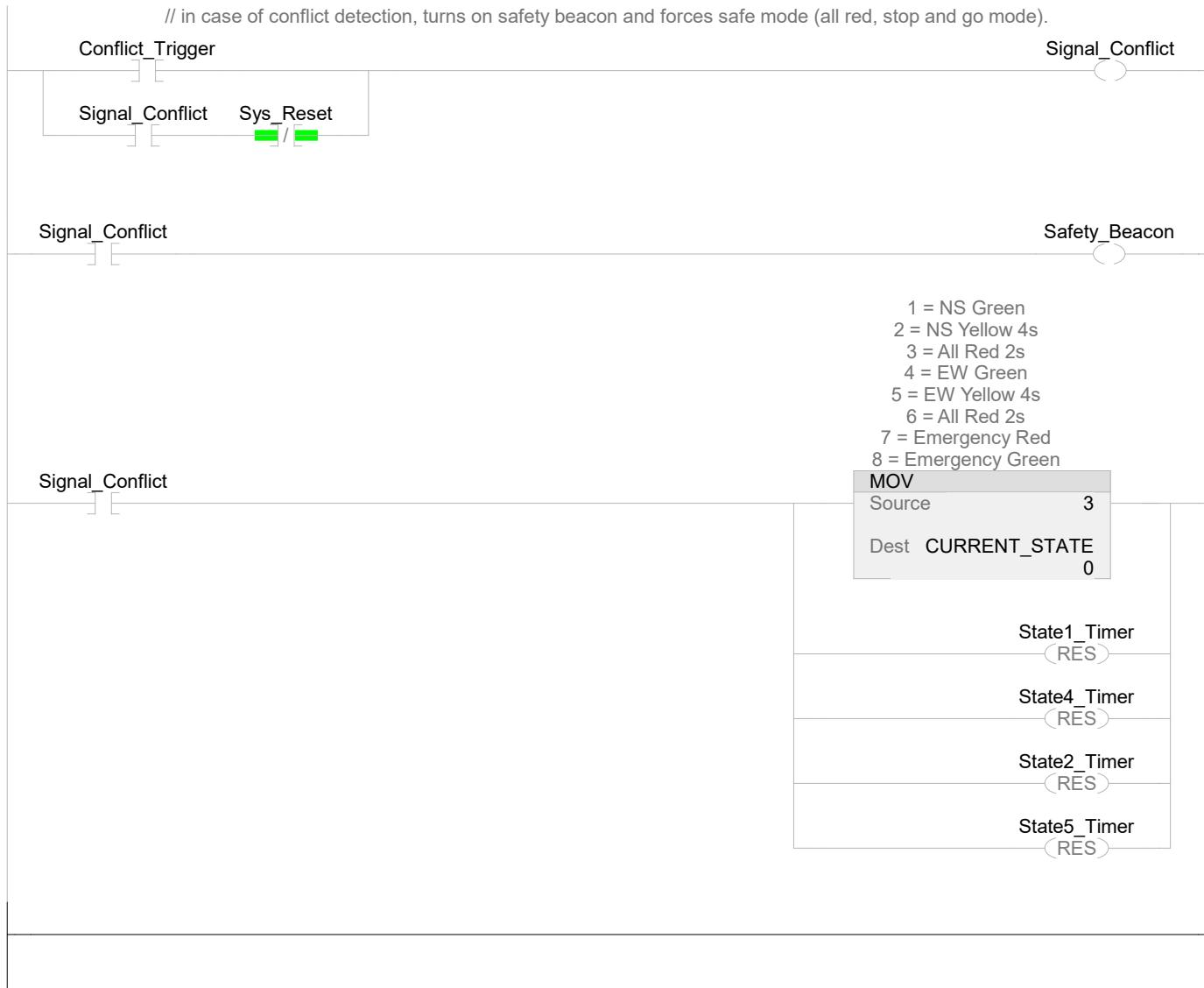
State2_Timer.DN

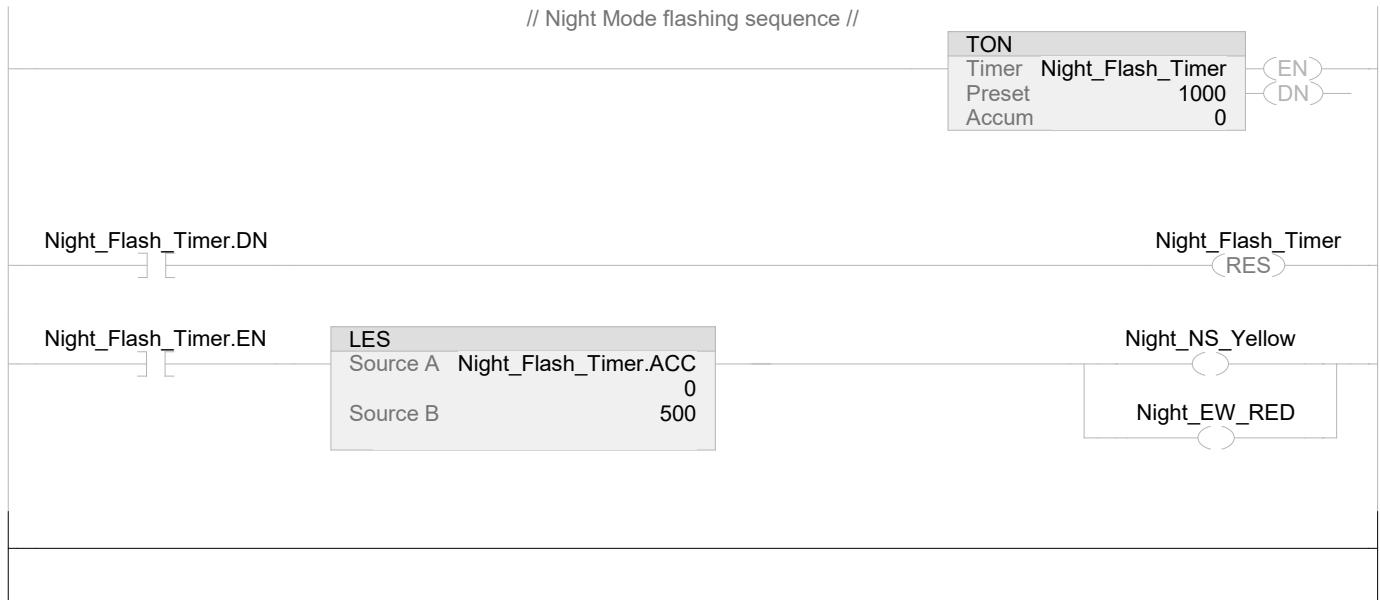
1 = NS Green
 2 = NS Yellow 4s
 3 = All Red 2s
 4 = EW Green
 5 = EW Yellow 4s
 6 = All Red 2s
 7 = Emergency Red
 8 = Emergency Green

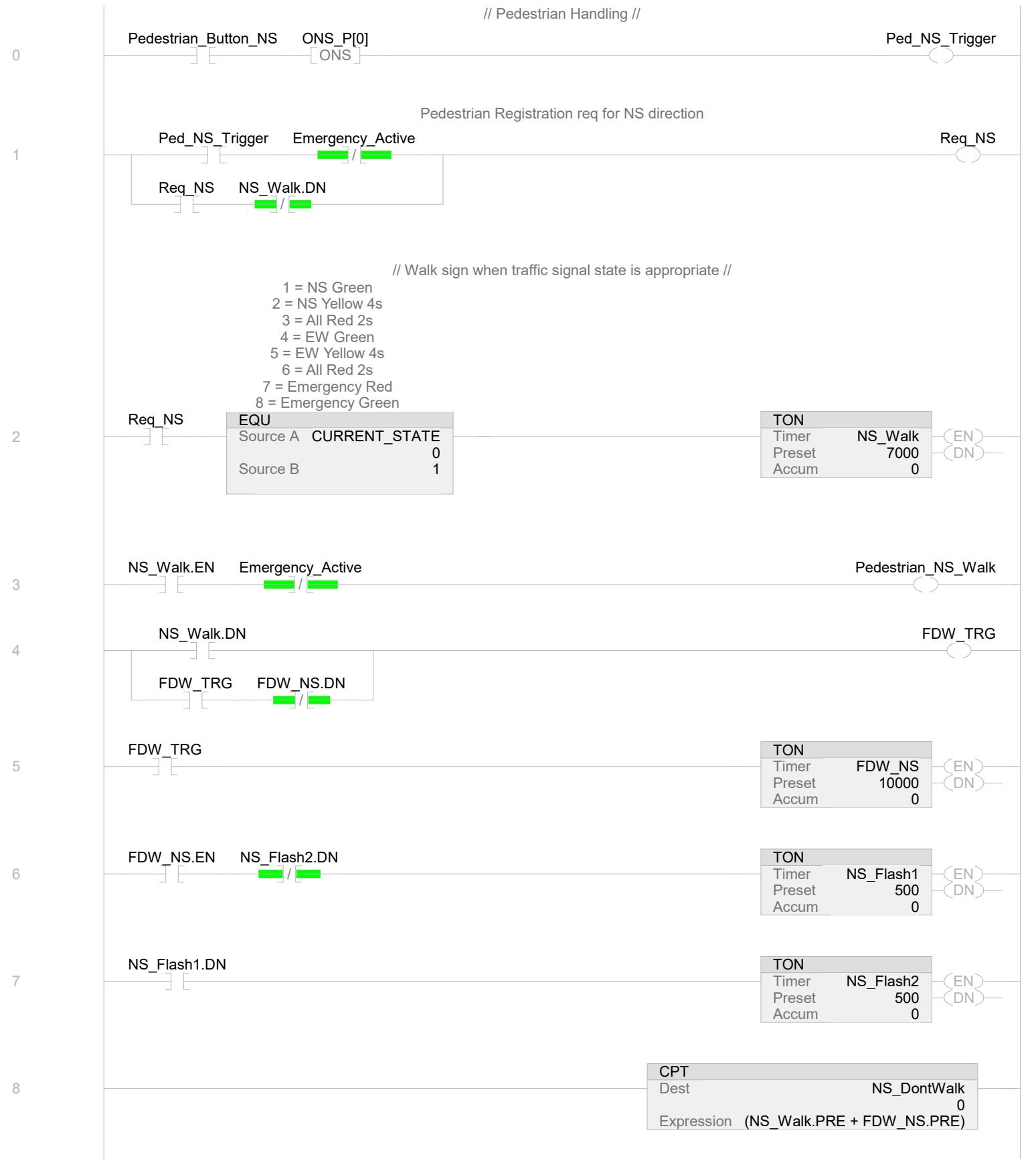
MOV		
Source	3	
Dest	CURRENT_STATE	0

Auto_NS_Green Auto_EW_Green ONS1 [ONS]

Conflict_Trigger



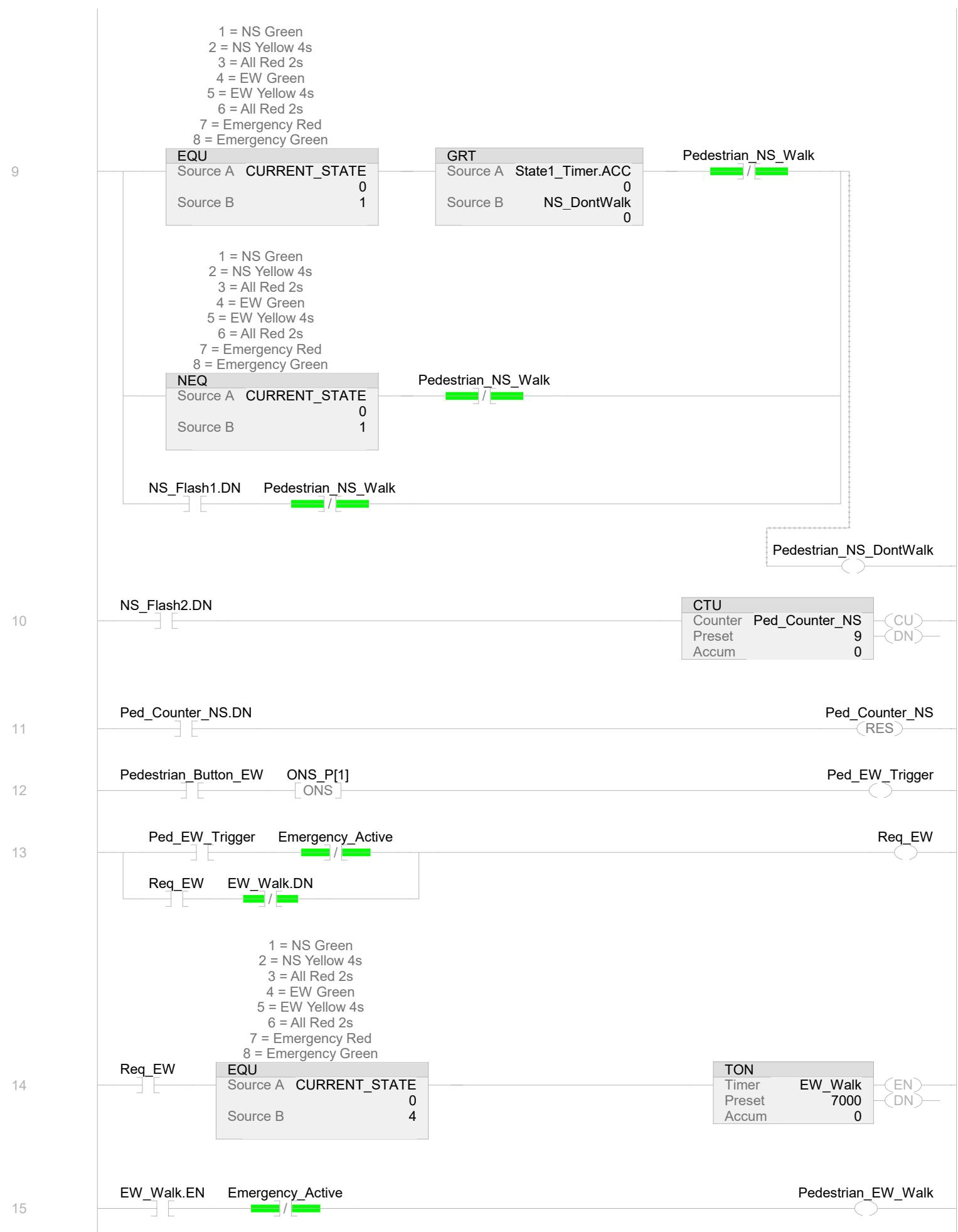




R07_Pedestrian_Handling - Ladder Diagram

TEMPLATE:MainTask:MainProgram

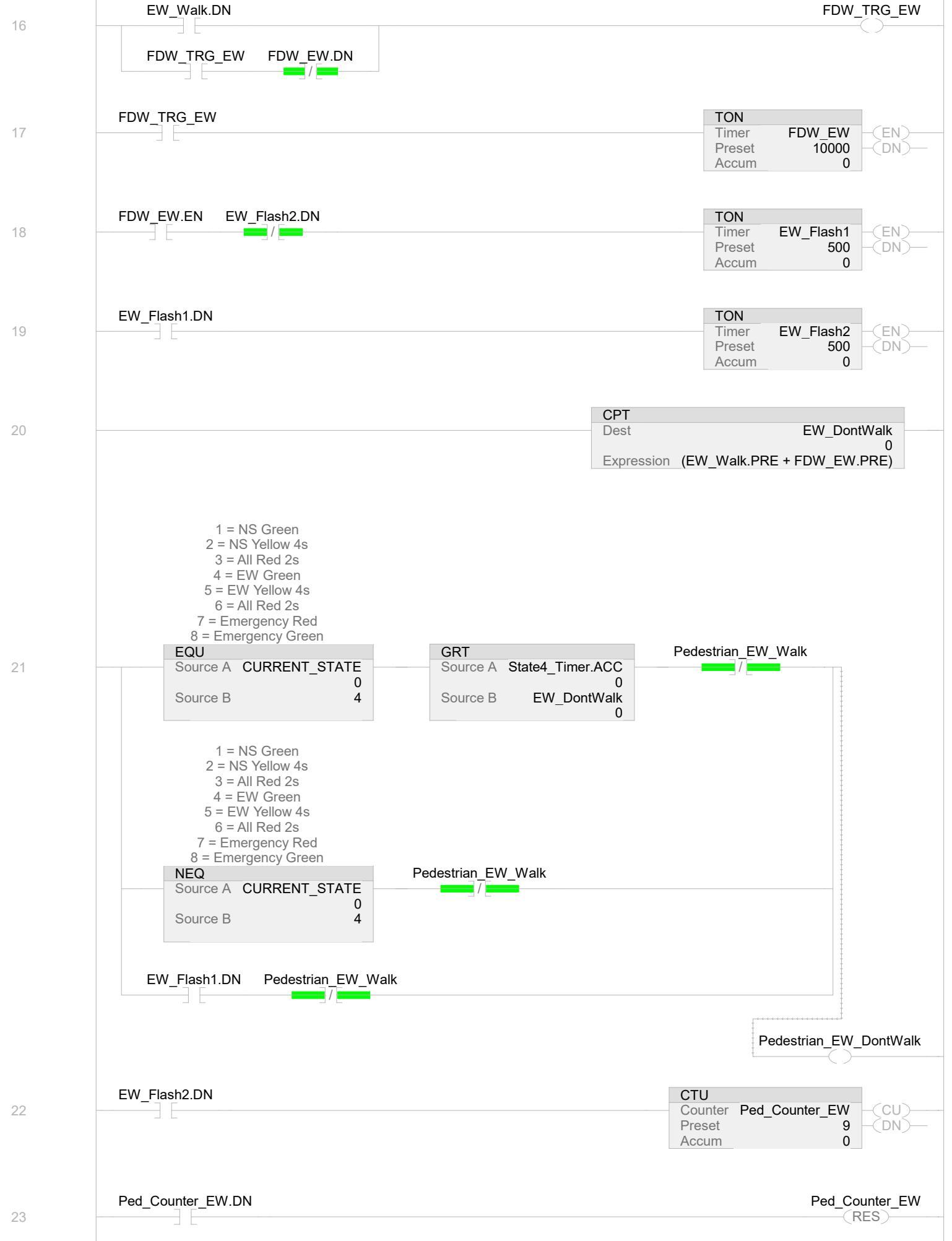
Total number of rungs in routine: 24



R07_Pedestrian_Handling - Ladder Diagram

TEMPLATE:MainTask:MainProgram

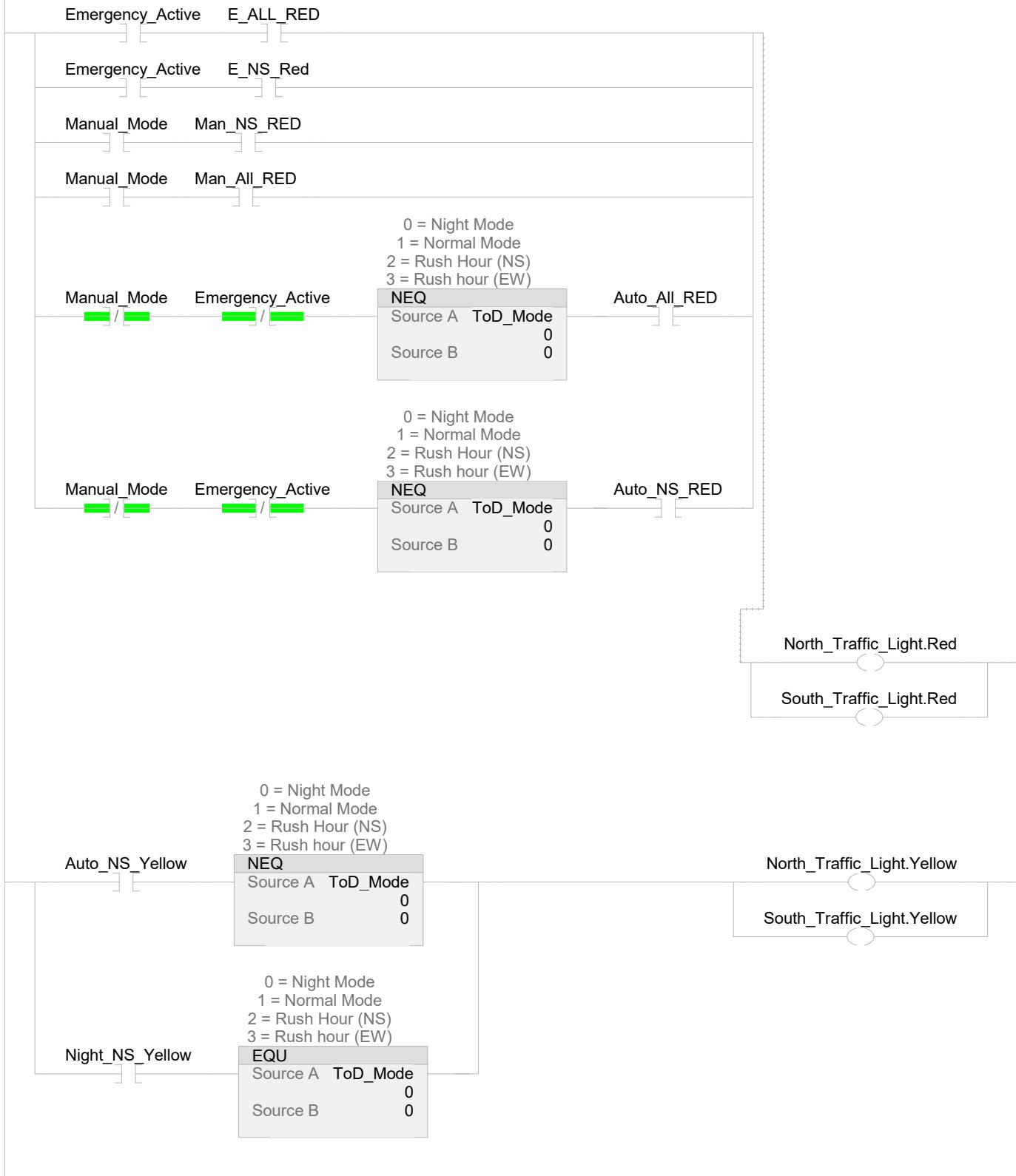
Total number of rungs in routine: 24



(End)



// To avoid destructive bits //
 // To ensure Emergency > Manual > Night > Auto //
 // Avoids stale bit bugs in case of Mode changes //

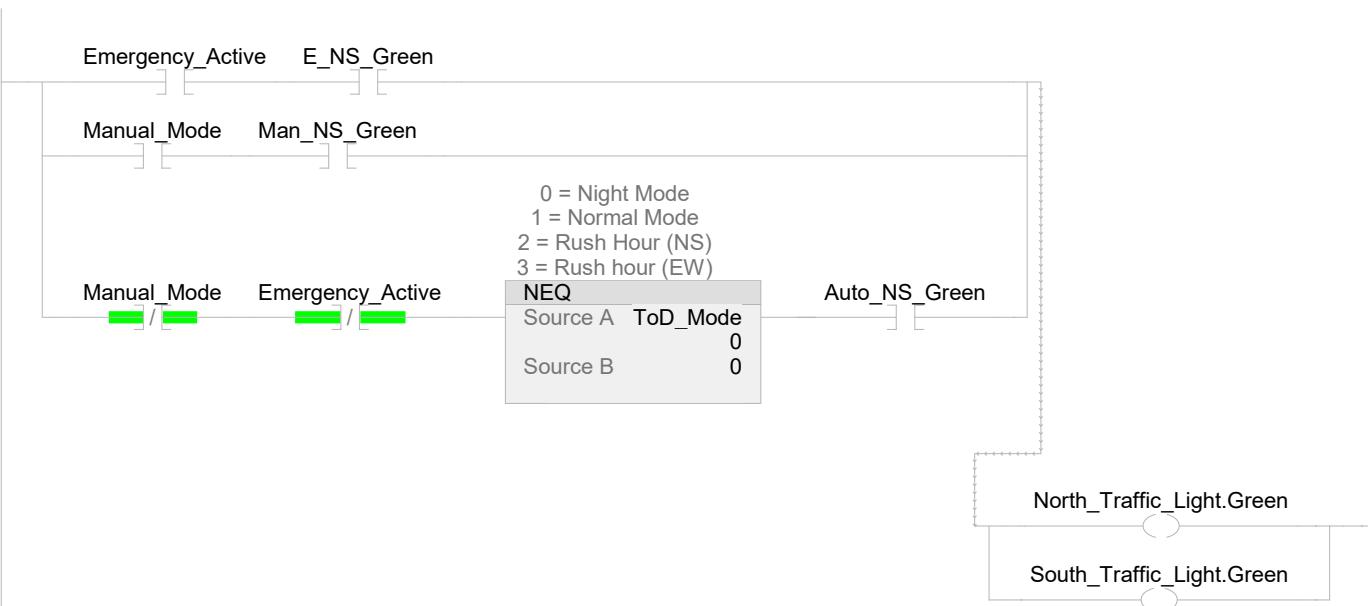


R08_Lights_MappingOutputs - Ladder Diagram

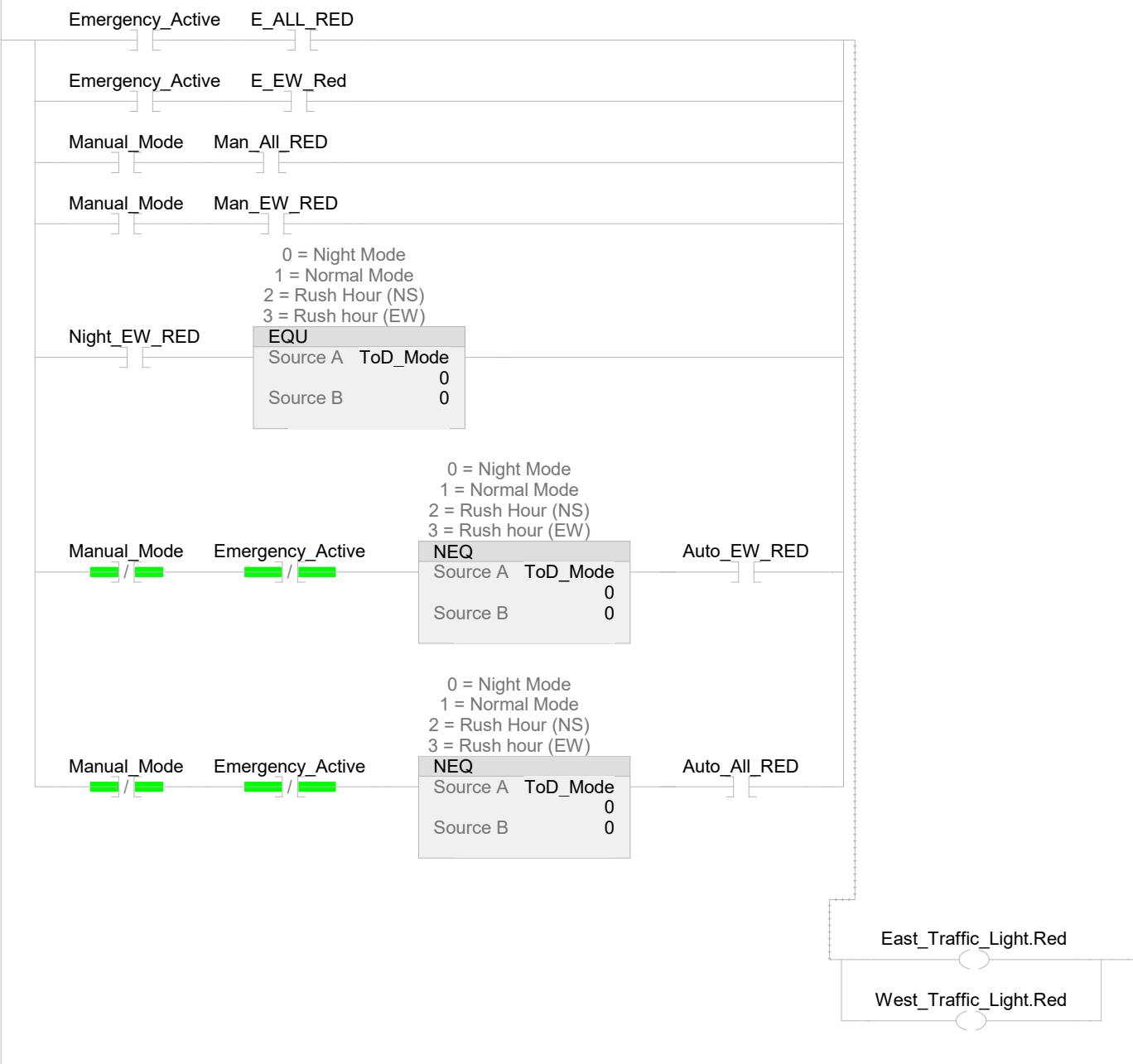
TEMPLATE>MainTask>MainProgram

Total number of rungs in routine: 6

2



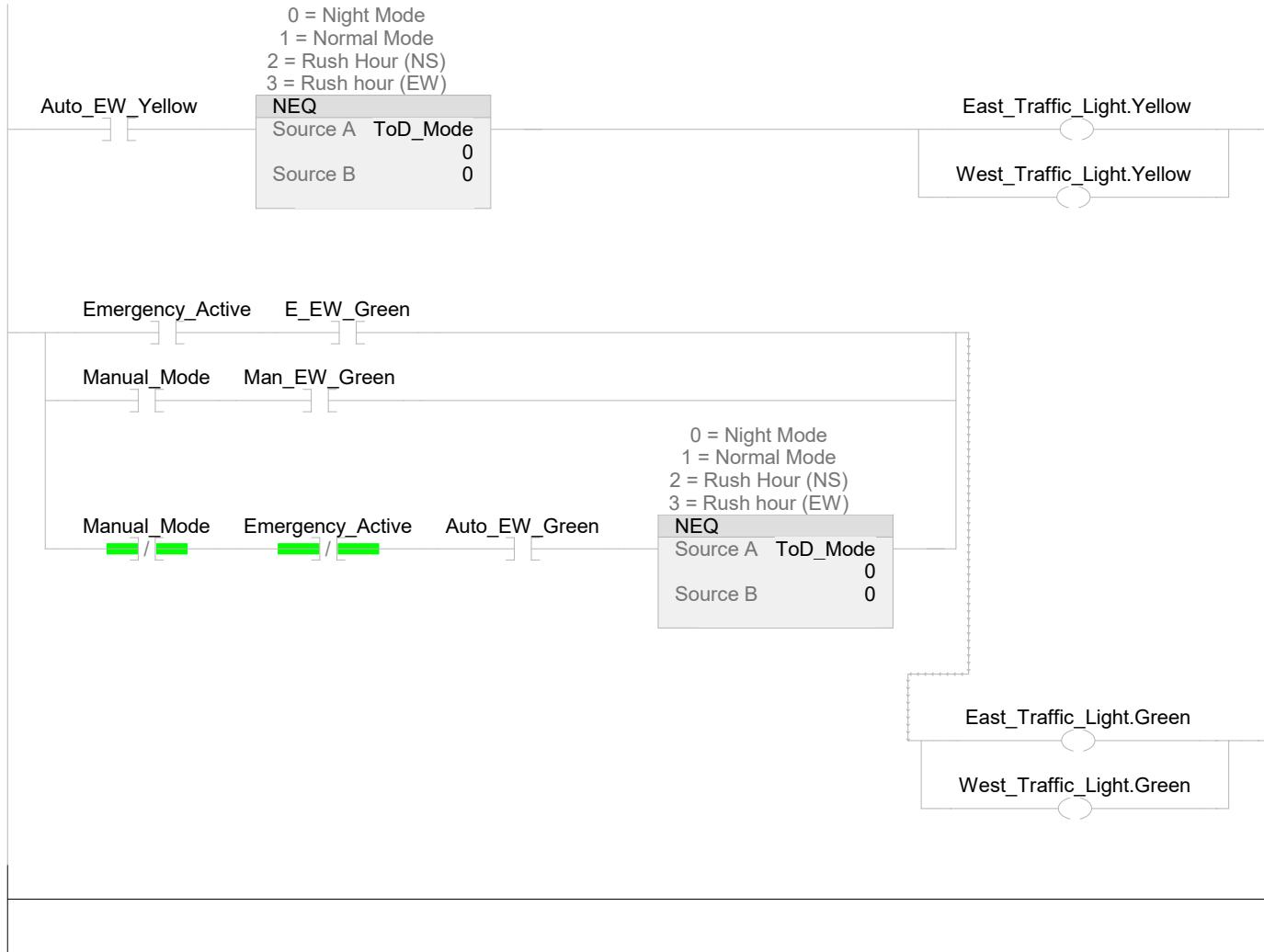
3



R08_Lights_MappingOutputs - Ladder Diagram

TEMPLATE>MainTask>MainProgram

Total number of rungs in routine: 6



R09_Manual_Mode - Ladder Diagram

TEMPLATE:MainTask:MainProgram

Total number of rungs in routine: 4

