

# Traffic Study

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Sr. VP

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Dir. Eng. Design



# June 20<sup>th</sup> Summary

- Existing Intersection meets 80 Sec. Delay.
- Existing Intersection Fails 80 Sec. w/  
Background traffic.
- Intersection must be redesigned to meet  
future conditions and eliminate existing  
operational issues.

# Old Intersection Design

With No Crosswalk  
and  
No ALL RED Phase

= May work under 80 Sec Delay

1. Bus Holding  
WB Traffic – Safety  
Issue, cars go around.

2. Less Frontage

3. No Capacity  
for Future

4. Less storage  
between  
intersections.

# Traffic Study

- Existing Traffic
- Background Traffic
- Total Traffic
- AM Peak = 7:30-8:30 PM Peak = 5:15-6:15
- Site Traffic
  - AM = 47 In / 12 Out
  - PM = 70 In / 94 Out
- Prepared a Model
- Study Total Traffic Improvement Options

# Delay Info:

**Delay - AFTER TIMING CHANGES**

## SimTraffic Simulation

		Existing Traffic	Background Traffic	Total Traffic	Total Traffic w/Imp.
Morning Peak Hour Traffic	HCM Delay Standard (sec/veh)	Delay (sec/veh)	Delay (sec/veh)	Delay (sec/veh)	Delay (sec/veh)
1. Ethan Allen Ave & Carroll Ave/Grant Ave	80	<del>68.1</del> 65.1	<del>89.8</del> 99.5	<del>93.1</del> 104.5	<del>14.8</del> 21.0
1a. Ethan Allen Ave & Sycamore Ave	80	151.9	147.1	154.2	
2. Carroll Ave & Philadelphia Ave	80	<del>9.2</del> 17.3	<del>10.0</del> 26.5	<del>9.8</del> 31.4	<del>10.1</del> 13.1
3. Carroll Ave & Site Access	80			<del>1.5</del> 3.5	<del>1.7</del> 12.2
Evening Peak Hour Traffic					
1. Ethan Allen Ave & Carroll Ave/Grant Ave	80	<del>34.3</del> 58.6	<del>35.1</del> 69.7	<del>31.2</del> 68.0	<del>12.8</del> 23.3
1a. Ethan Allen Ave & Sycamore Ave	80	<del>41.5</del>	<del>39.3</del>	<del>54.1</del>	
2. Carroll Ave & Philadelphia Ave	80	<del>41.1</del> 58.2	<del>44.8</del> 85.3	<del>93.3</del> 145.5	<del>18.5</del> 25.7
3. Carroll Ave & Site Access	80			<del>21.4</del>	<del>3.4</del>

29.4

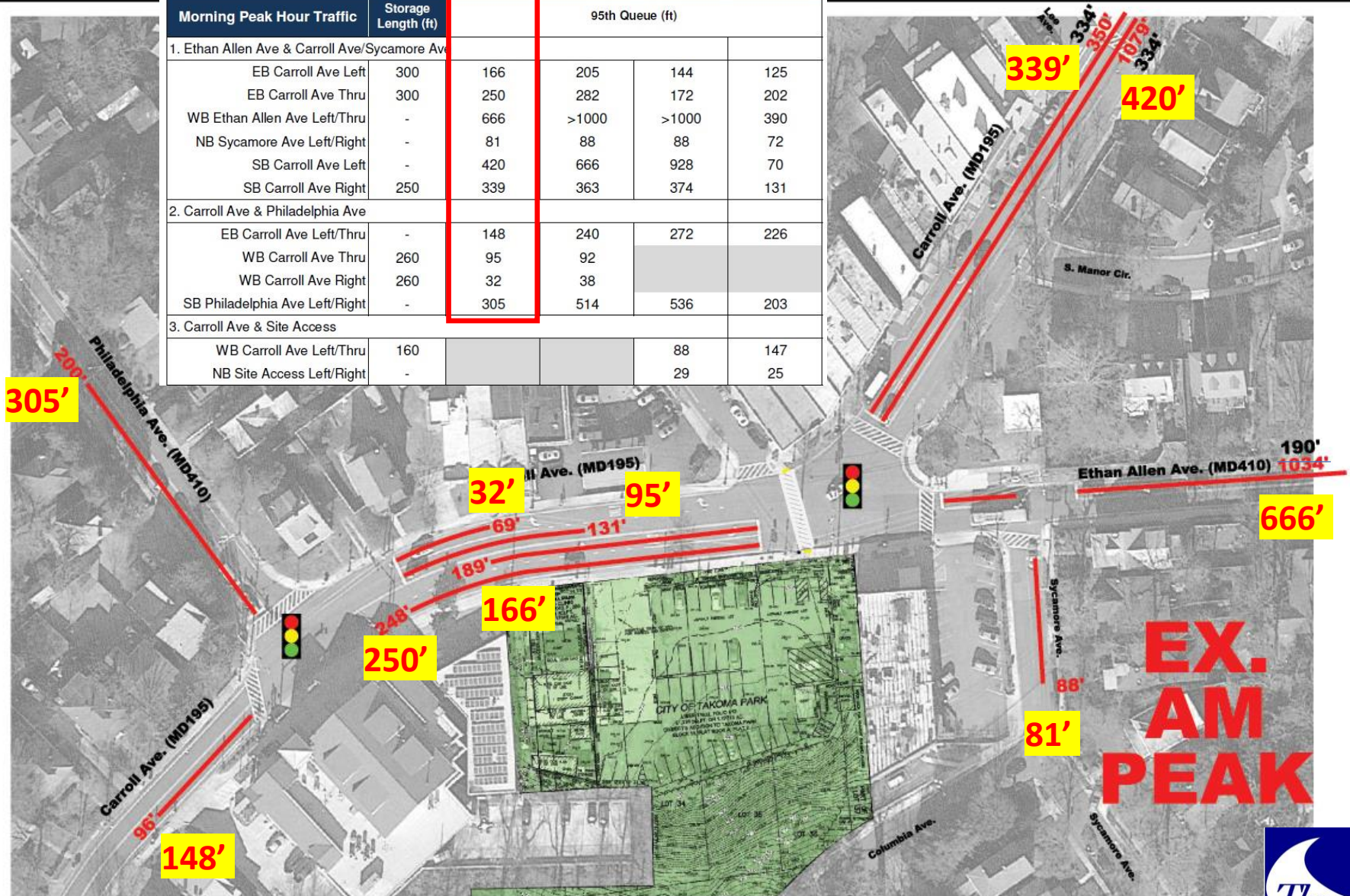
9.2

Note: SimTraffic results are based on 10 simulation runs.

# Queuing Analysis

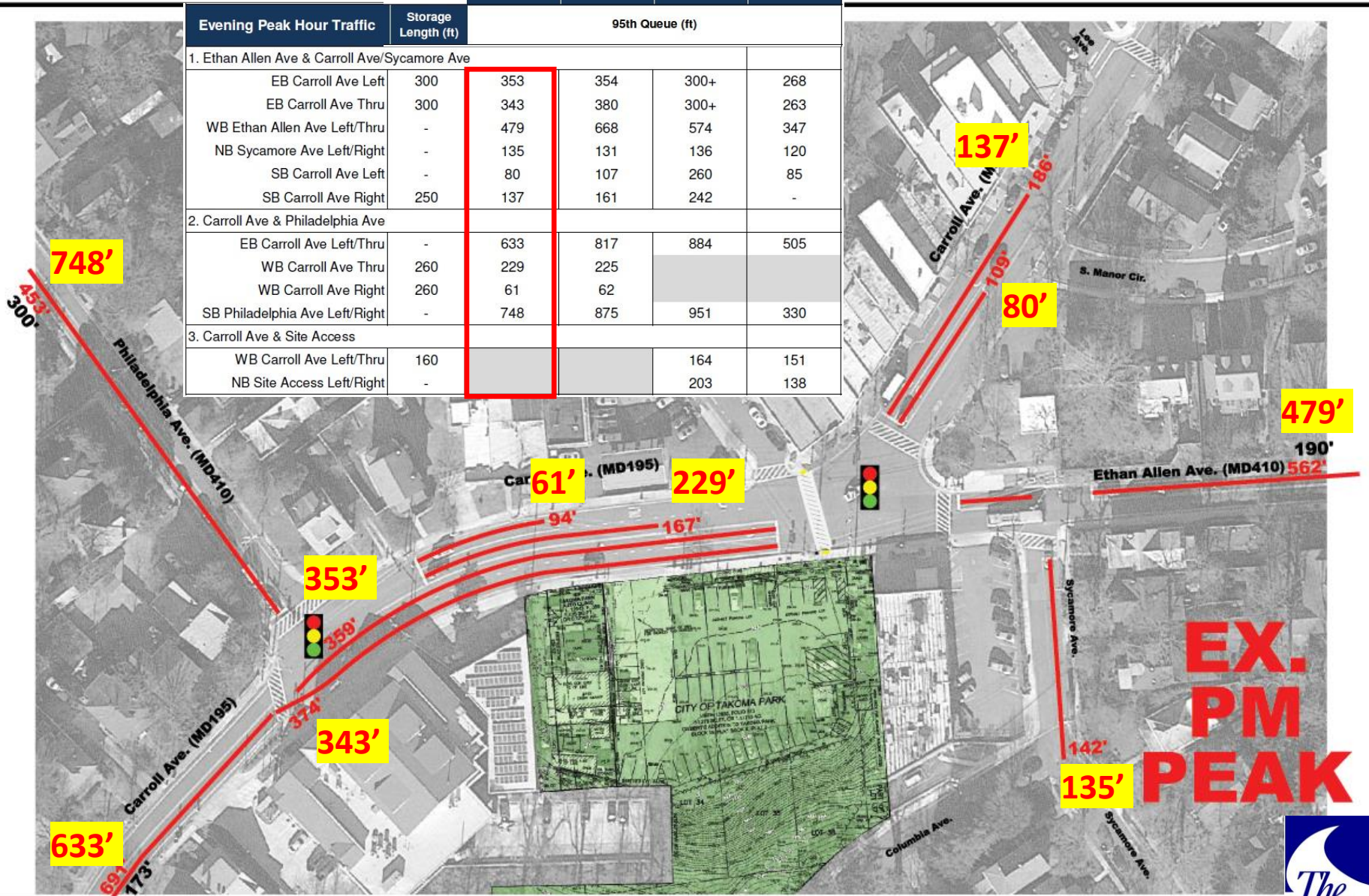
Morning Peak Hour Traffic	Storage Length (ft)	95th Queue (ft)			
1. Ethan Allen Ave & Carroll Ave/Sycamore Ave					
EB Carroll Ave Left	300	166	205	144	125
EB Carroll Ave Thru	300	250	282	172	202
WB Ethan Allen Ave Left/Thru	-	666	>1000	>1000	390
NB Sycamore Ave Left/Right	-	81	88	88	72
SB Carroll Ave Left	-	420	666	928	70
SB Carroll Ave Right	250	339	363	374	131
2. Carroll Ave & Philadelphia Ave					
EB Carroll Ave Left/Thru	-	148	240	272	226
WB Carroll Ave Thru	260	95	92		
WB Carroll Ave Right	260	32	38		
SB Philadelphia Ave Left/Right	-	305	514	536	203
3. Carroll Ave & Site Access					
WB Carroll Ave Left/Thru	160			88	147
NB Site Access Left/Right	-			29	25

## AM - AFTER TIMING CHANGES



# PM - AFTER TIMING CHANGES

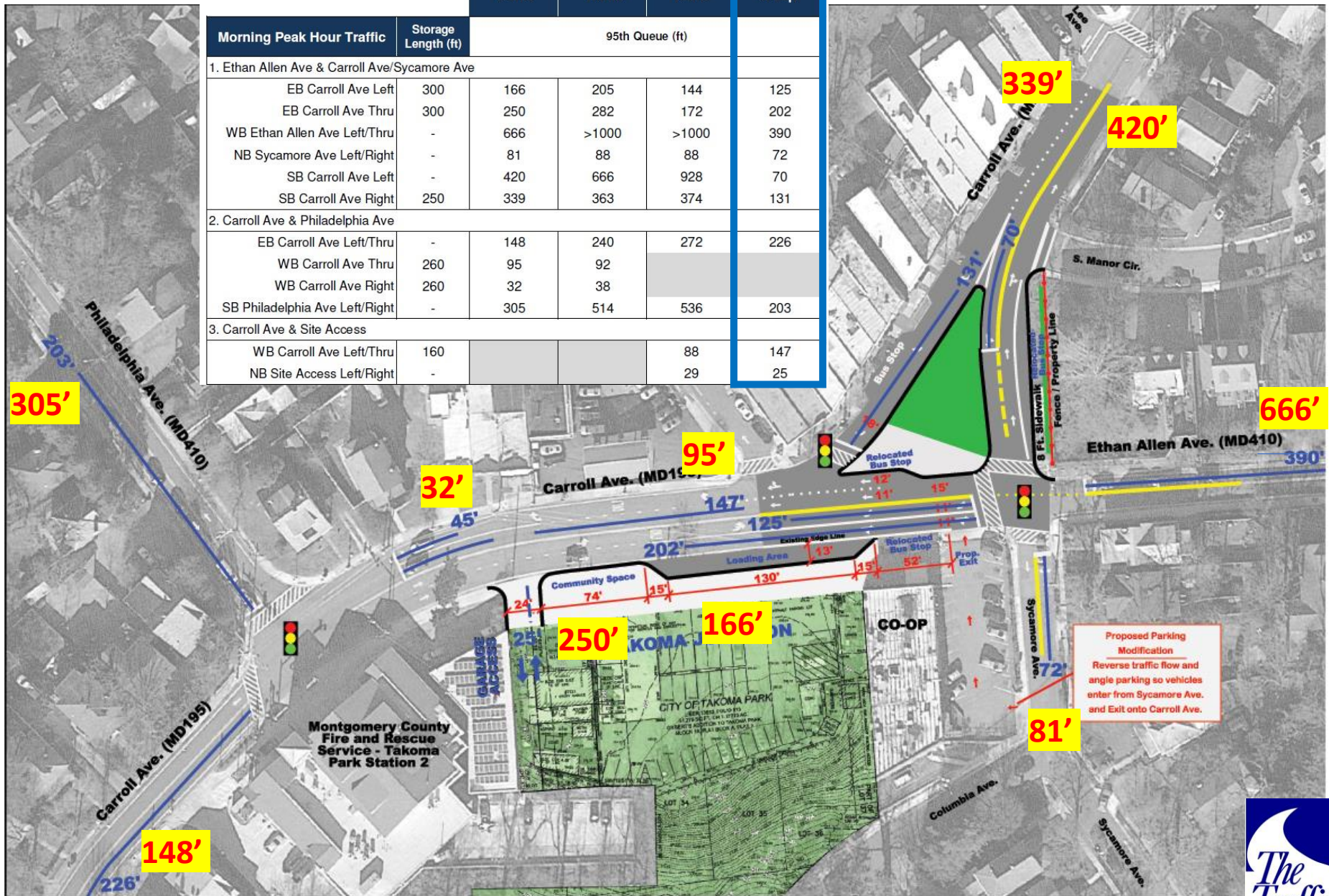
Evening Peak Hour Traffic	Storage Length (ft)	95th Queue (ft)			
1. Ethan Allen Ave & Carroll Ave/Sycamore Ave					
EB Carroll Ave Left	300	353	354	300+	268
EB Carroll Ave Thru	300	343	380	300+	263
WB Ethan Allen Ave Left/Thru	-	479	668	574	347
NB Sycamore Ave Left/Right	-	135	131	136	120
SB Carroll Ave Left	-	80	107	260	85
SB Carroll Ave Right	250	137	161	242	-
2. Carroll Ave & Philadelphia Ave					
EB Carroll Ave Left/Thru	-	633	817	884	505
WB Carroll Ave Thru	260	229	225		
WB Carroll Ave Right	260	61	62		
SB Philadelphia Ave Left/Right	-	748	875	951	330
3. Carroll Ave & Site Access					
WB Carroll Ave Left/Thru	160			164	151
NB Site Access Left/Right	-			203	138



# Queuing Analysis

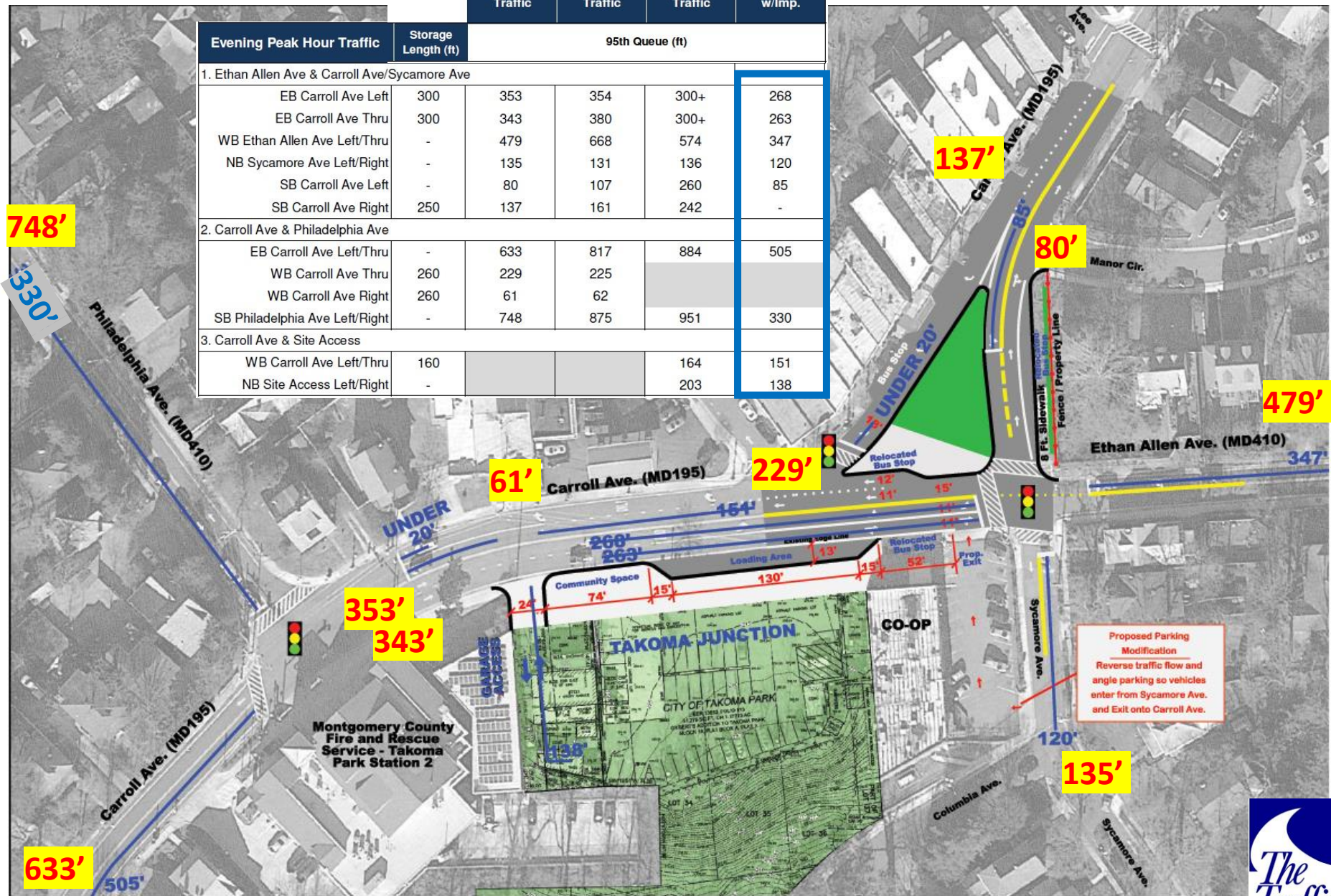
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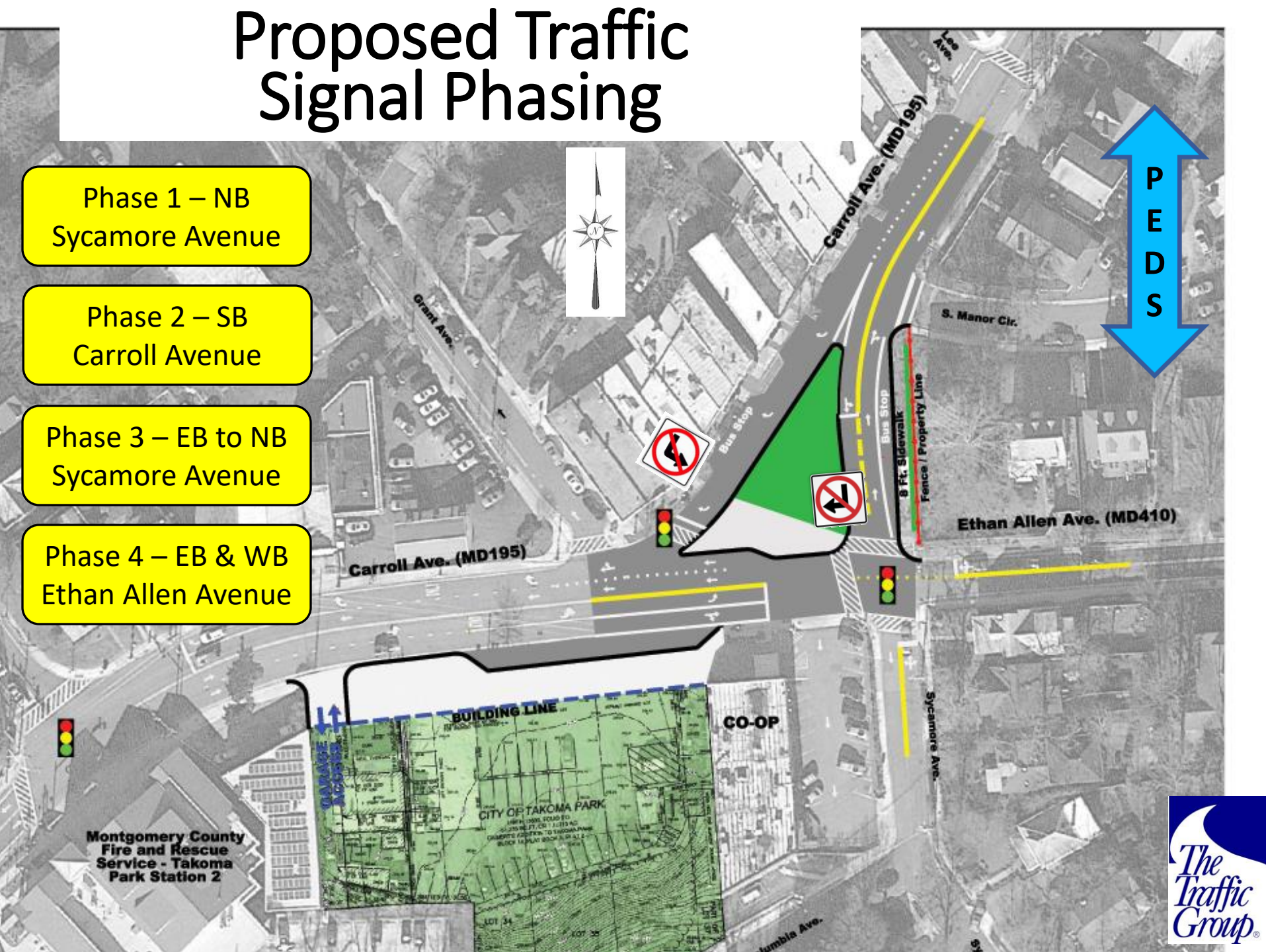
# Proposed Traffic Signal Phasing

Phase 1 – NB  
Sycamore Avenue

Phase 2 – SB  
Carroll Avenue

Phase 3 – EB to NB  
Sycamore Avenue

Phase 4 – EB & WB  
Ethan Allen Avenue



# Proposed Traffic Signal Phasing

Phase 1 – NB  
Sycamore Avenue

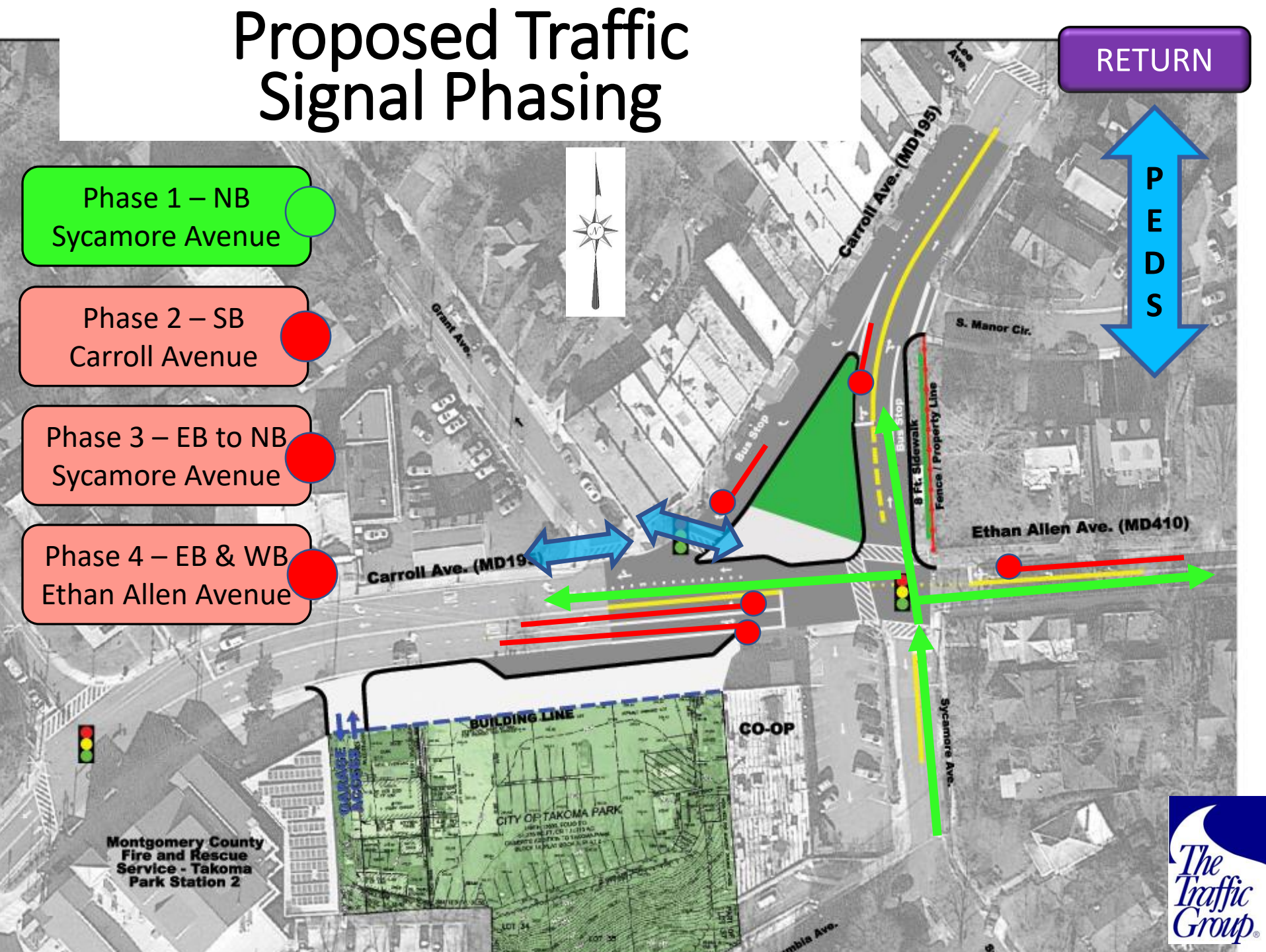
Phase 2 – SB  
Carroll Avenue

Phase 3 – EB to NB  
Sycamore Avenue

Phase 4 – EB & WB  
Ethan Allen Avenue

RETURN

P  
E  
D  
S





P  
E  
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S

**CO-OP**



*The  
Traffic  
Group*®

# Proposed Traffic Signal Phasing

Phase 1 – NB  
Sycamore Avenue

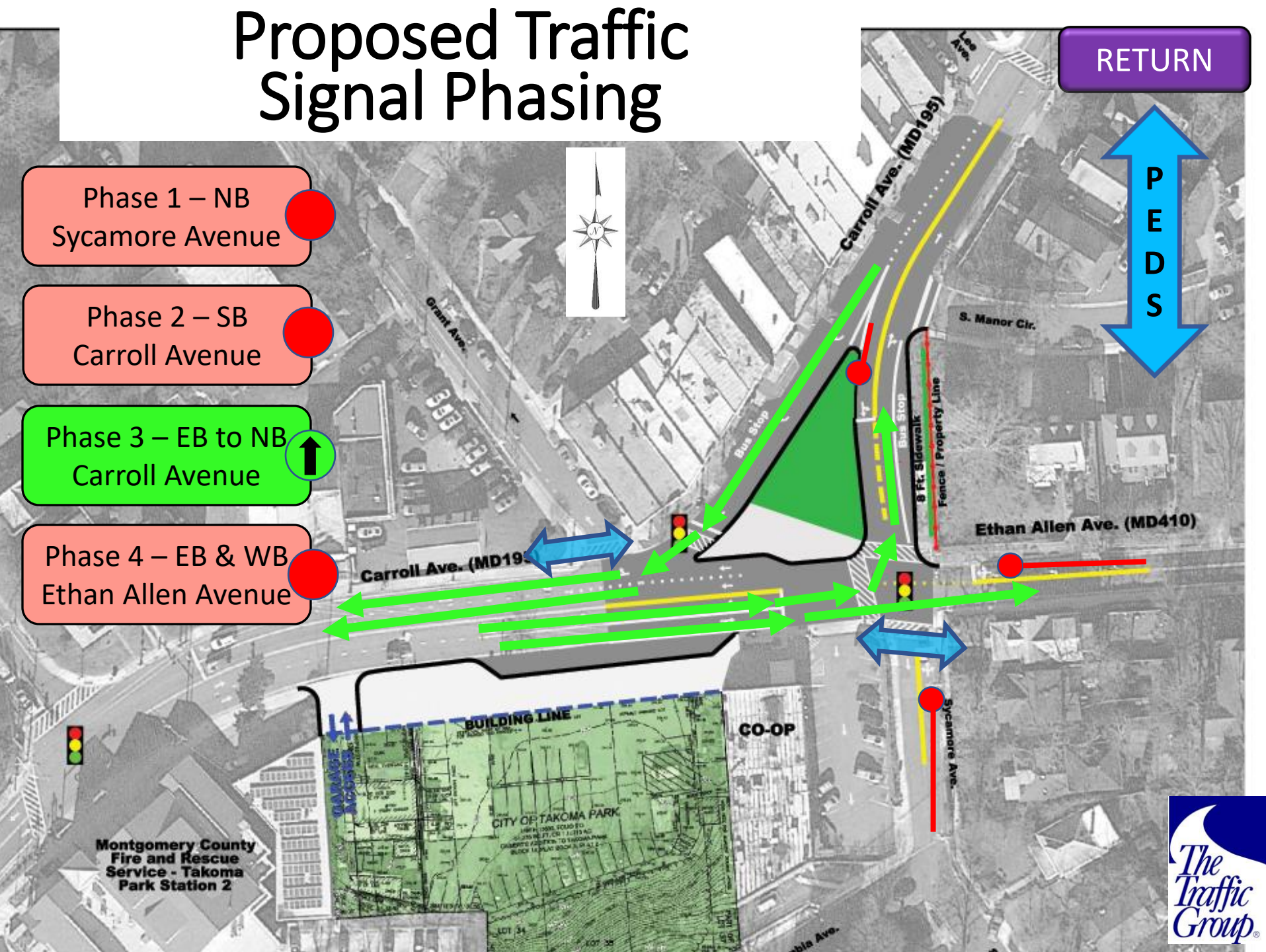
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RETURN

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EB to NB Carroll Ave  
must Yield to WB.

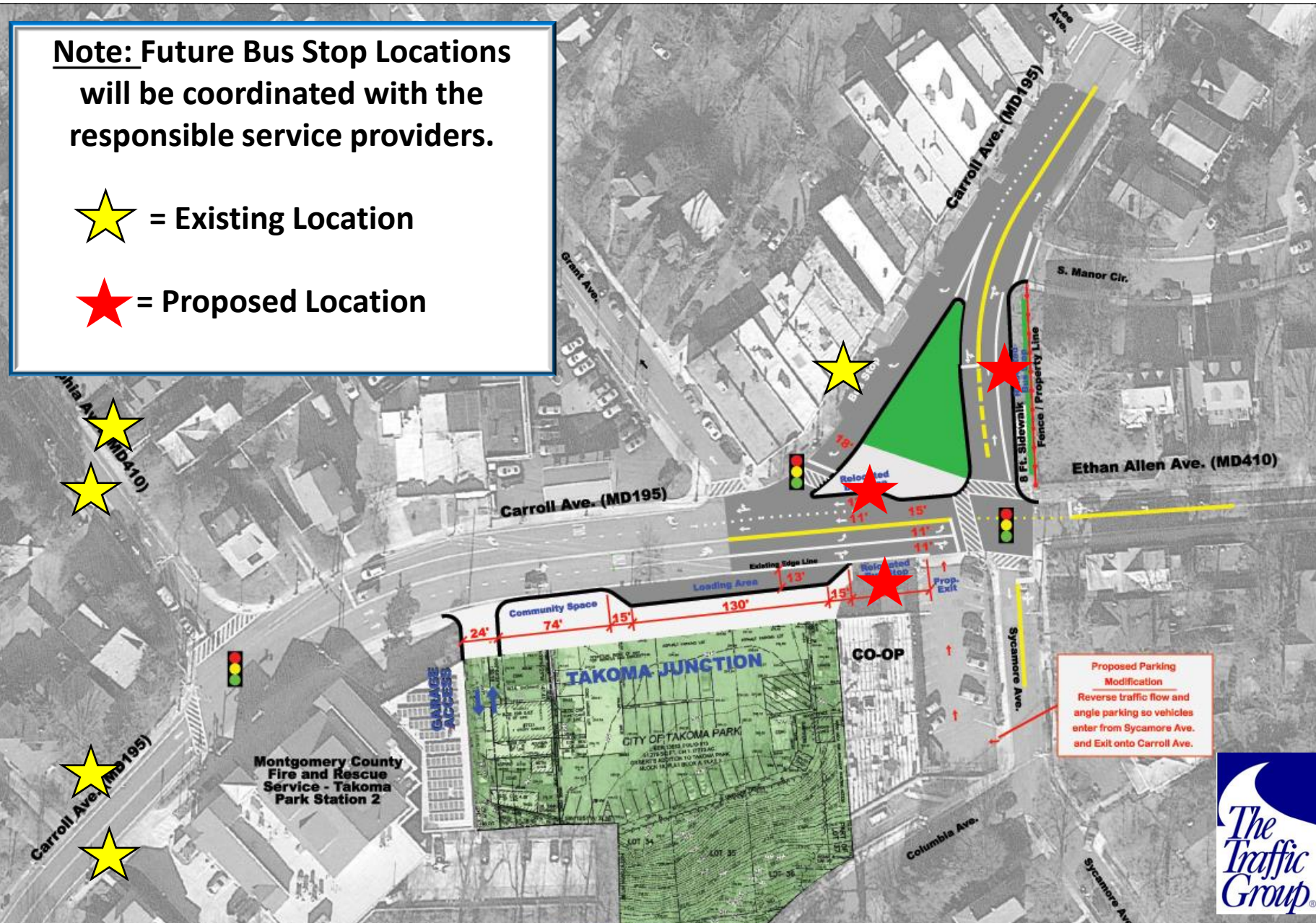
Montgomery County  
Fire and Rescue  
Service - Takoma  
Park Station 2

# Bus Stop Re-locations

**Note: Future Bus Stop Locations will be coordinated with the responsible service providers.**

 = Existing Location

 = Proposed Location





# Questions