I-95 Interchange Modification Report

Improvements to I-95 between Exit 133 and Exit 130

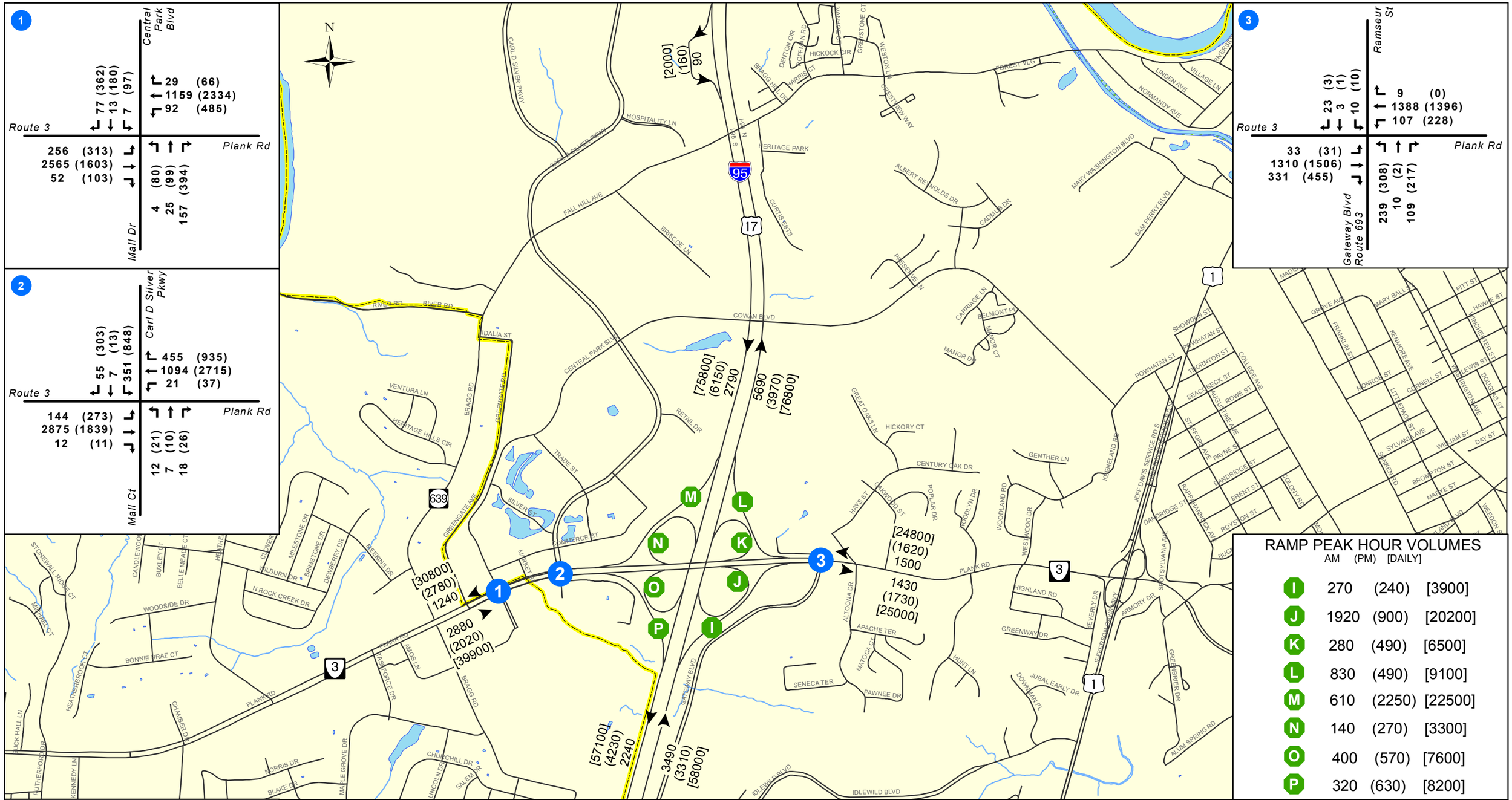
Volume II - Report Figures

February 13, 2015

Prepared by:

Baker

Michael Baker Jr., Inc.



RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
I	270	(240)	[3900]
J	1920	(900)	[20200]
K	280	(490)	[6500]
L	830	(490)	[9100]
M	610	(2250)	[22500]
N	140	(270)	[3300]
O	400	(570)	[7600]
P	320	(630)	[8200]

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Figure 2-6A: 2013 Traffic Volumes

Legend

- # Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2013 Traffic Volumes

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

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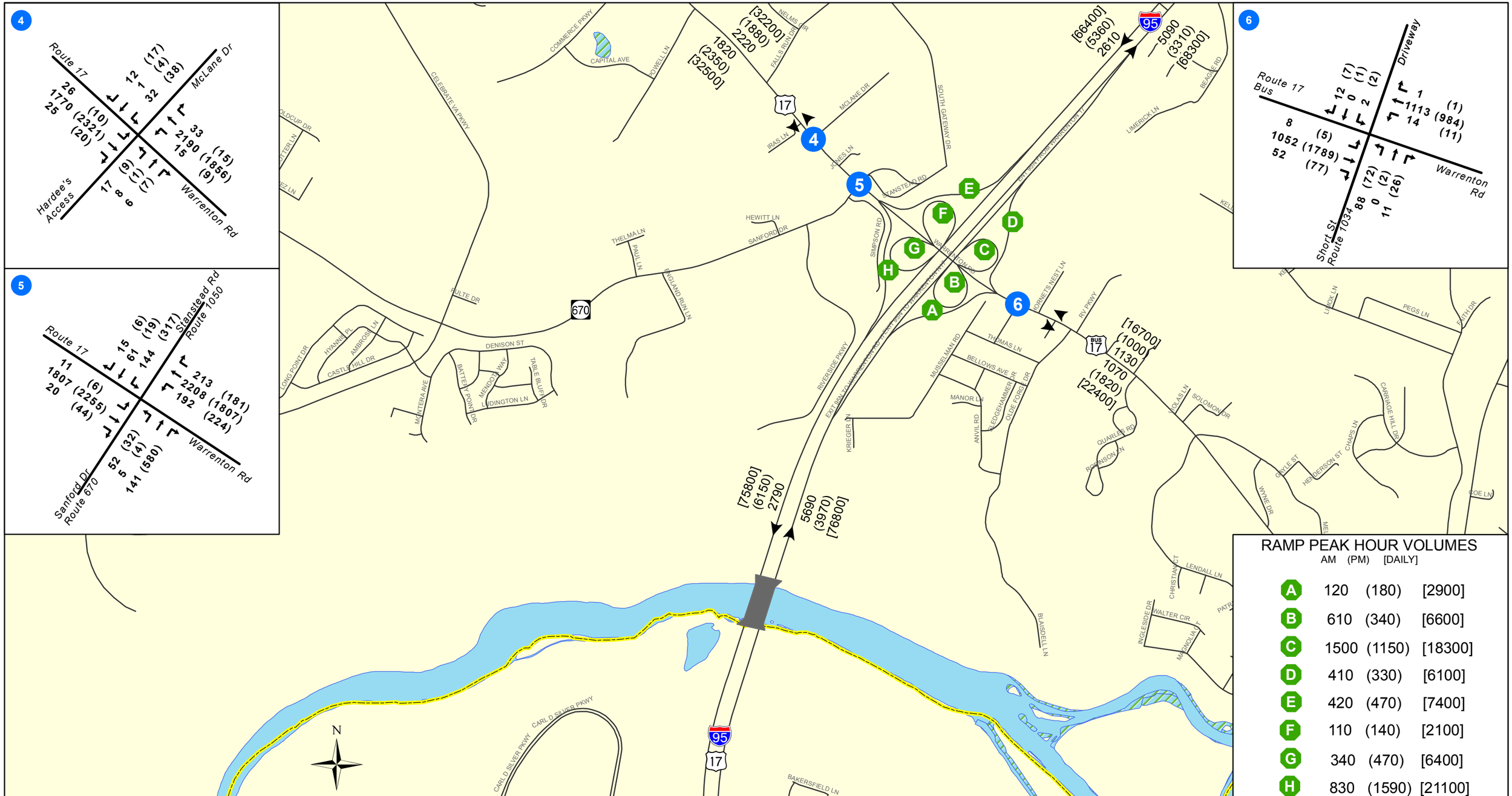

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
A	120	(180)	[2900]
B	610	(340)	[6600]
C	1500	(1150)	[18300]
D	410	(330)	[6100]
E	420	(470)	[7400]
F	110	(140)	[2100]
G	340	(470)	[6400]
H	830	(1590)	[21100]

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Figure 2-6B: 2013 Traffic Volumes

Legend

- # Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

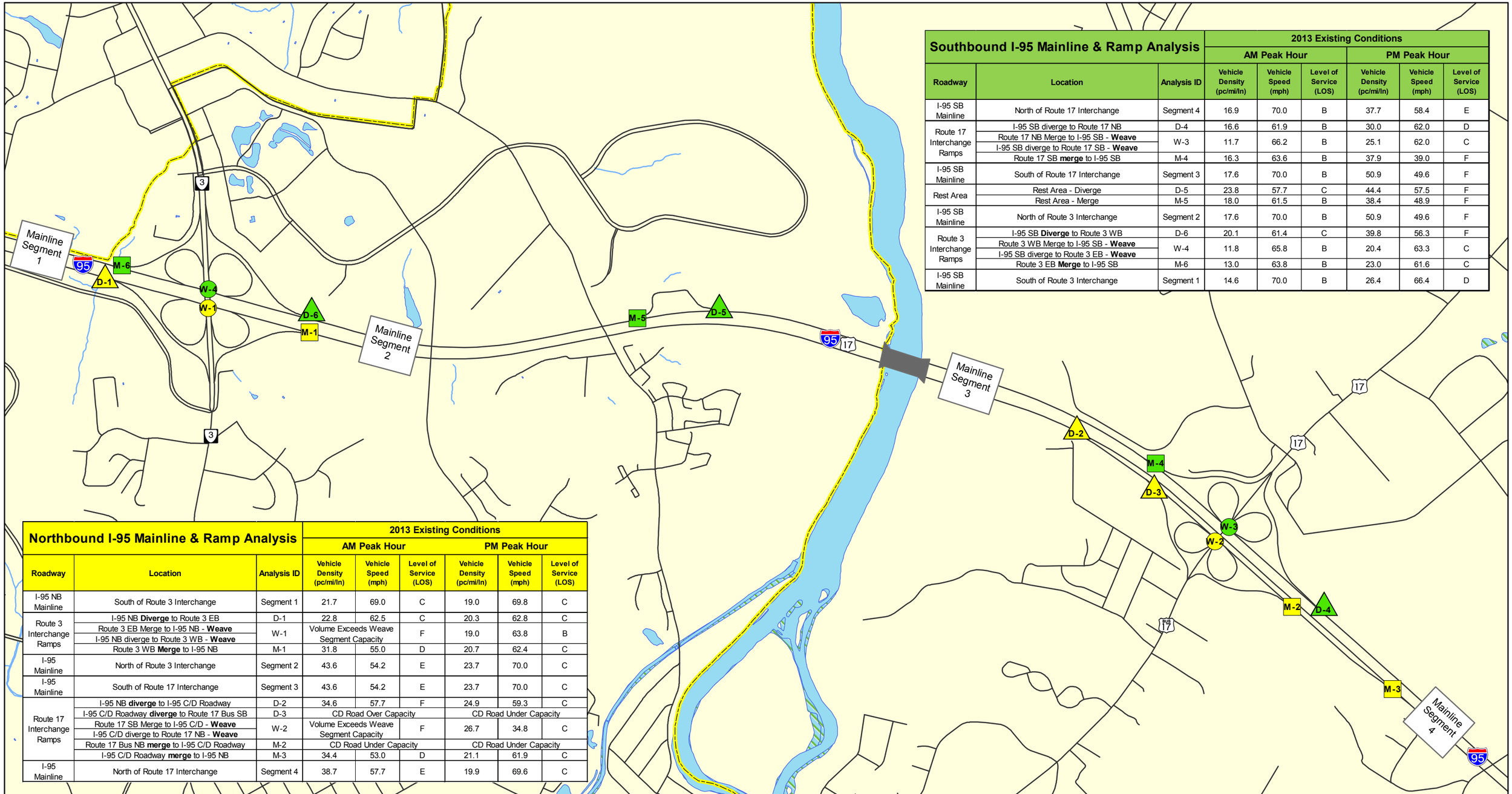
2013 Traffic Volumes

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker



Southbound I-95 Mainline & Ramp Analysis			2013 Existing Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis ID	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 SB Mainline	North of Route 17 Interchange	Segment 4	16.9	70.0	B	37.7	58.4	E
Route 17 Interchange Ramps	I-95 SB diverge to Route 17 NB	D-4	16.6	61.9	B	30.0	62.0	D
	Route 17 NB Merge to I-95 SB - **Weave**	W-3	11.7	66.2	B	25.1	62.0	C
	I-95 SB diverge to Route 17 SB - **Weave**							
	Route 17 SB **merge** to I-95 SB	M-4	16.3	63.6	B	37.9	39.0	F
I-95 SB Mainline	South of Route 17 Interchange	Segment 3	17.6	70.0	B	50.9	49.6	F
Rest Area	Rest Area - Diverge	D-5	23.8	57.7	C	44.4	57.5	F
	Rest Area - Merge	M-5	18.0	61.5	B	38.4	48.9	F
I-95 SB Mainline	North of Route 3 Interchange	Segment 2	17.6	70.0	B	50.9	49.6	F
Route 3 Interchange Ramps	I-95 SB **Diverge** to Route 3 WB	D-6	20.1	61.4	C	39.8	56.3	F
	Route 3 WB Merge to I-95 SB - **Weave**	W-4	11.8	65.8	B	20.4	63.3	C
	I-95 SB diverge to Route 3 EB - **Weave**							
	Route 3 EB **Merge** to I-95 SB	M-6	13.0	63.8	B	23.0	61.6	C
I-95 SB Mainline	South of Route 3 Interchange	Segment 1	14.6	70.0	B	26.4	66.4	D

Northbound I-95 Mainline & Ramp Analysis			2013 Existing Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis ID	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 NB Mainline	South of Route 3 Interchange	Segment 1	21.7	69.0	C	19.0	69.8	C
Route 3 Interchange Ramps	I-95 NB **Diverge** to Route 3 EB	D-1	22.8	62.5	C	20.3	62.8	C
	Route 3 EB Merge to I-95 NB - **Weave**	W-1	Volume Exceeds Weave Segment Capacity		F	19.0	63.8	B
	I-95 NB diverge to Route 3 WB - **Weave**							
	Route 3 WB **Merge** to I-95 NB	M-1	31.8	55.0	D	20.7	62.4	C
I-95 Mainline	North of Route 3 Interchange	Segment 2	43.6	54.2	E	23.7	70.0	C
I-95 Mainline	South of Route 17 Interchange	Segment 3	43.6	54.2	E	23.7	70.0	C
Route 17 Interchange Ramps	I-95 NB **diverge** to I-95 C/D Roadway	D-2	34.6	57.7	F	24.9	59.3	C
	I-95 C/D Roadway **diverge** to Route 17 Bus SB	D-3	CD Road Over Capacity			CD Road Under Capacity		
	Route 17 SB Merge to I-95 C/D - **Weave**	W-2	Volume Exceeds Weave Segment Capacity		F	26.7	34.8	C
	I-95 C/D diverge to Route 17 NB - **Weave**							
	Route 17 Bus NB **merge** to I-95 C/D Roadway	M-2	CD Road Under Capacity			CD Road Under Capacity		
	I-95 C/D Roadway **merge** to I-95 NB	M-3	34.4	53.0	D	21.1	61.9	C
I-95 Mainline	North of Route 17 Interchange	Segment 4	38.7	57.7	E	19.9	69.6	C

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Figure 2-7: 2013 Existing Traffic Operations

Legend

- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2013 Existing Traffic Operations

NB SB

- D-3 / D-3 Diverge Junction
- M-3 / M-3 Merge Junction
- W-3 / W-3 Weave Junction

N

1,600 800 0 1,600 Feet

Baker

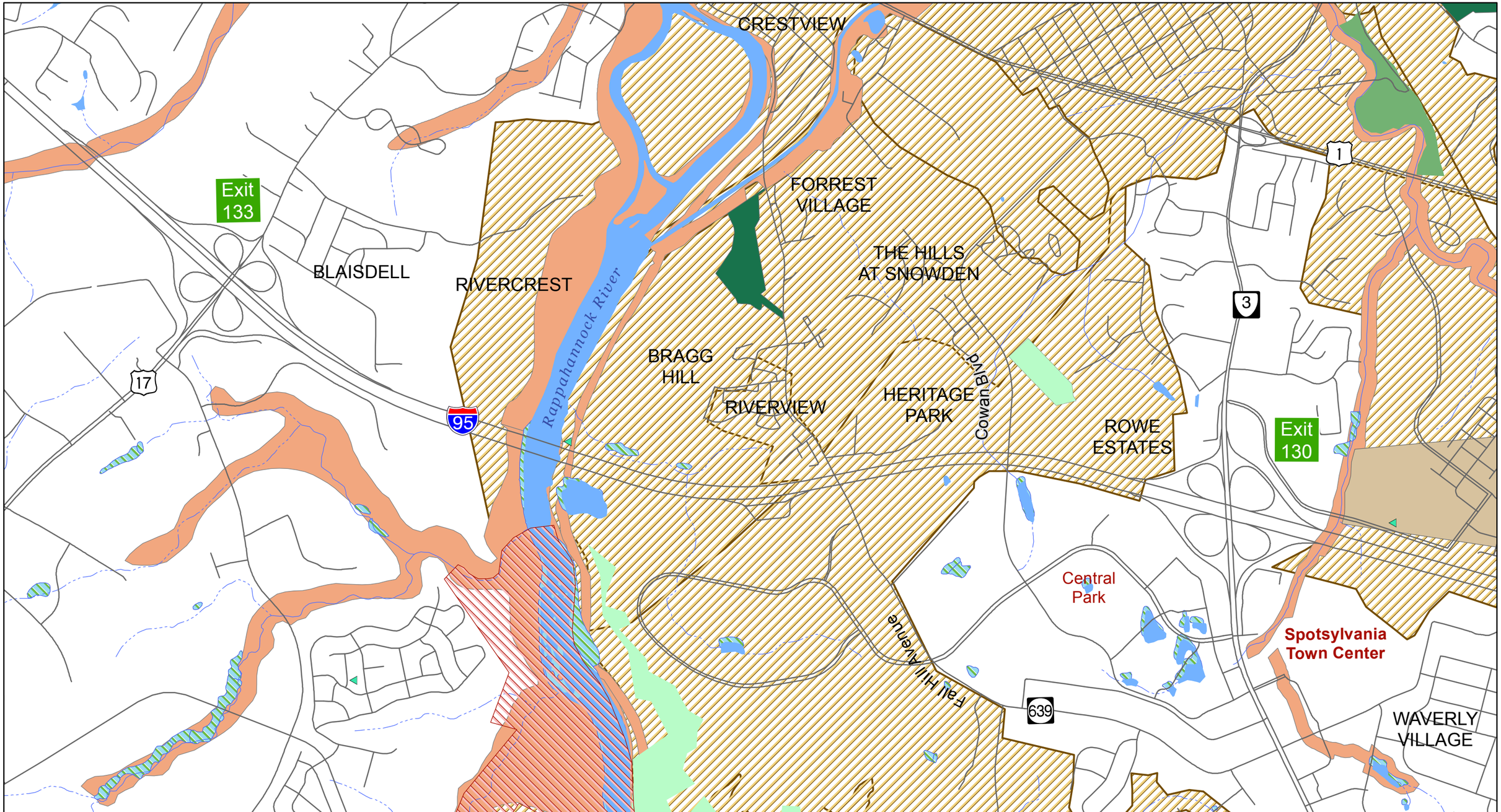

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Figure 2-12: Existing Enviornmental Constraints

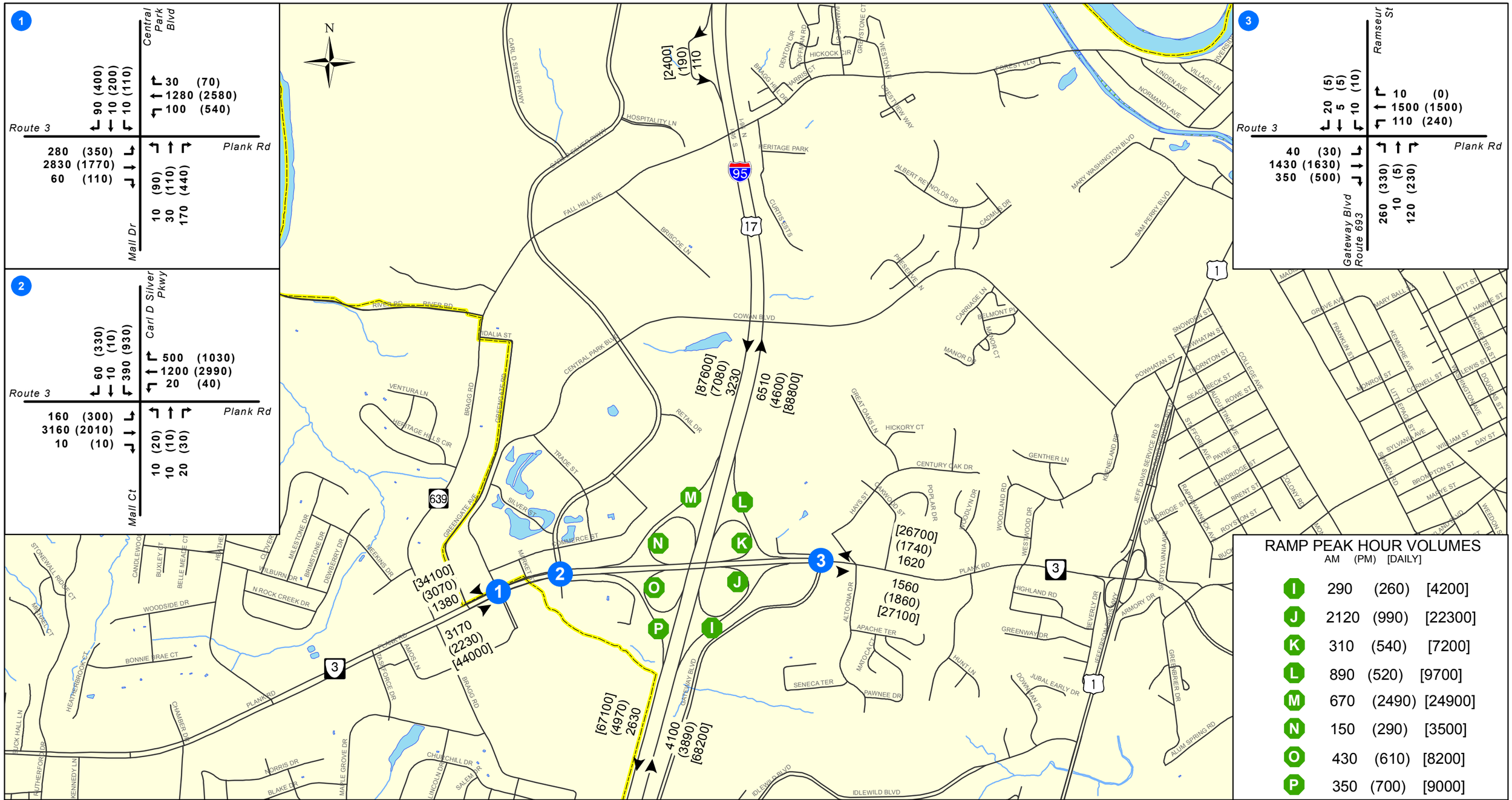
Legend

- VDHR Architectural Sites
- Architectural Historic Areas
- Fredericksburg Riparian Lands
- Historic Districts
- DCR or VOF Easement
- Local Park
- National Park
- Non-Profit Holding
- Wetlands
- RPA/RMA

N

0 1,250 2,500 5,000
Feet

Baker



RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
I	290	(260)	[4200]
J	2120	(990)	[22300]
K	310	(540)	[7200]
L	890	(520)	[9700]
M	670	(2490)	[24900]
N	150	(290)	[3500]
O	430	(610)	[8200]
P	350	(700)	[9000]

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Figure 3-2A: 2020 No-Build Traffic Volumes

Legend

- # Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2020 No-Build Traffic Volumes

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

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RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
A	130	(200)	[3200]
B	720	(400)	[7800]
C	1760	(1350)	[21400]
D	450	(360)	[6700]
E	490	(550)	[8700]
F	120	(150)	[2300]
G	380	(520)	[7000]
H	980	(1870)	[24800]

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Figure 3-2B: 2020 No-Build Traffic Volumes

Legend

- # Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2020 No-Build Traffic Volumes

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

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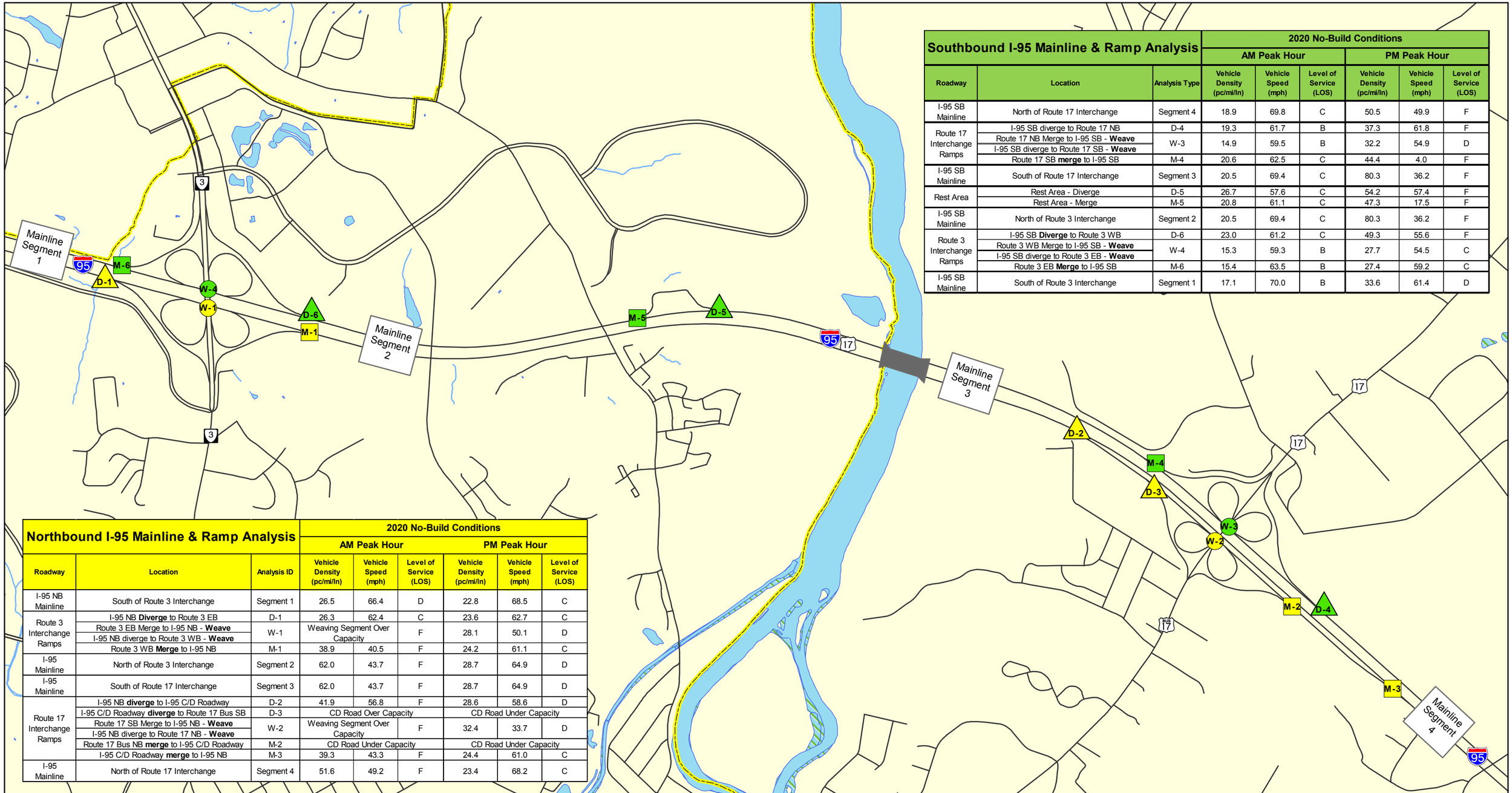

Southbound I-95 Mainline & Ramp Analysis			2020 No-Build Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis Type	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 SB Mainline	North of Route 17 Interchange	Segment 4	18.9	69.8	C	50.5	49.9	F
Route 17 Interchange Ramps	I-95 SB diverge to Route 17 NB	D-4	19.3	61.7	B	37.3	61.8	F
	Route 17 NB Merge to I-95 SB - **Weave**	W-3	14.9	59.5	B	32.2	54.9	D
	I-95 SB diverge to Route 17 SB - **Weave**							
	Route 17 SB **merge** to I-95 SB	M-4	20.6	62.5	C	44.4	4.0	F
I-95 SB Mainline	South of Route 17 Interchange	Segment 3	20.5	69.4	C	80.3	36.2	F
Rest Area	Rest Area - Diverge	D-5	26.7	57.6	C	54.2	57.4	F
	Rest Area - Merge	M-5	20.8	61.1	C	47.3	17.5	F
I-95 SB Mainline	North of Route 3 Interchange	Segment 2	20.5	69.4	C	80.3	36.2	F
Route 3 Interchange Ramps	I-95 SB **Diverge** to Route 3 WB	D-6	23.0	61.2	C	49.3	55.6	F
	Route 3 WB Merge to I-95 SB - **Weave**	W-4	15.3	59.3	B	27.7	54.5	C
	I-95 SB diverge to Route 3 EB - **Weave**							
	Route 3 EB **Merge** to I-95 SB	M-6	15.4	63.5	B	27.4	59.2	C
I-95 SB Mainline	South of Route 3 Interchange	Segment 1	17.1	70.0	B	33.6	61.4	D

Northbound I-95 Mainline & Ramp Analysis			2020 No-Build Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis ID	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 NB Mainline	South of Route 3 Interchange	Segment 1	26.5	66.4	D	22.8	68.5	C
Route 3 Interchange Ramps	I-95 NB **Diverge** to Route 3 EB	D-1	26.3	62.4	C	23.6	62.7	C
	Route 3 EB Merge to I-95 NB - **Weave**	W-1	Weaving Segment Over Capacity		F	28.1	50.1	D
	I-95 NB diverge to Route 3 WB - **Weave**							
	Route 3 WB **Merge** to I-95 NB	M-1	38.9	40.5	F	24.2	61.1	C
I-95 Mainline	North of Route 3 Interchange	Segment 2	62.0	43.7	F	28.7	64.9	D
I-95 Mainline	South of Route 17 Interchange	Segment 3	62.0	43.7	F	28.7	64.9	D
Route 17 Interchange Ramps	I-95 NB **diverge** to I-95 C/D Roadway	D-2	41.9	56.8	F	28.6	58.6	D
	I-95 C/D Roadway **diverge** to Route 17 Bus SB	D-3	CD Road Over Capacity			CD Road Under Capacity		
	Route 17 SB Merge to I-95 NB - **Weave**	W-2	Weaving Segment Over Capacity		F	32.4	33.7	D
	I-95 NB diverge to Route 17 NB - **Weave**							
	Route 17 Bus NB **merge** to I-95 C/D Roadway	M-2	CD Road Under Capacity			CD Road Under Capacity		
	I-95 C/D Roadway **merge** to I-95 NB	M-3	39.3	43.3	F	24.4	61.0	C
I-95 Mainline	North of Route 17 Interchange	Segment 4	51.6	49.2	F	23.4	68.2	C

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Figure 3-3: 2020 No-Build Traffic Operations

Legend

- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2020 No-Build Traffic Operations

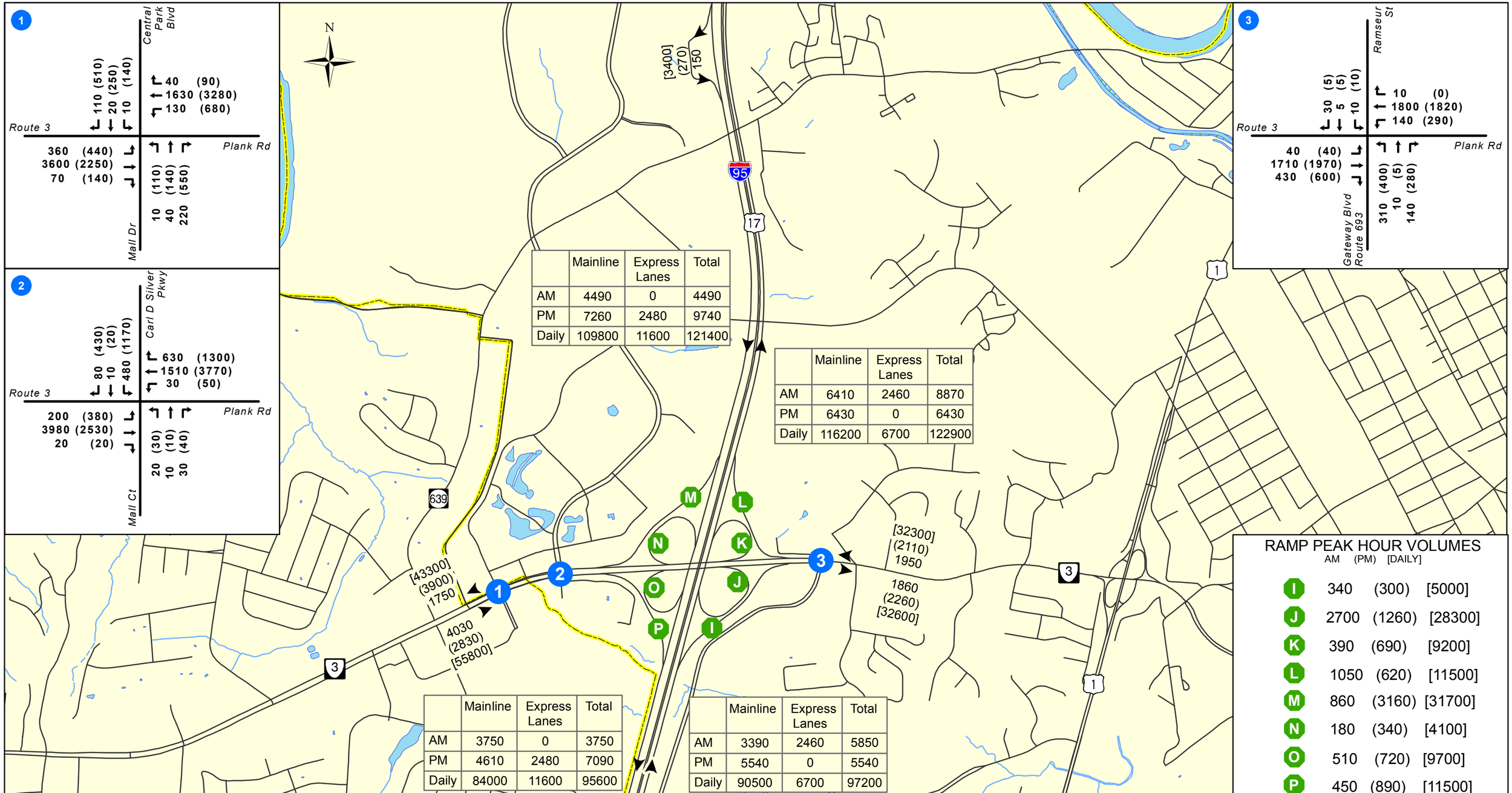
NB SB

- D-3 / D-3 Diverge Junction
- M-3 / M-3 Merge Junction
- W-3 / W-3 Weave Junction

N

1,600 800 0 1,600 Feet

Baker



I-95 Interchange Modification Report

Figure 3-4A: 2040 No-Build Traffic Volumes

Legend

- # Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

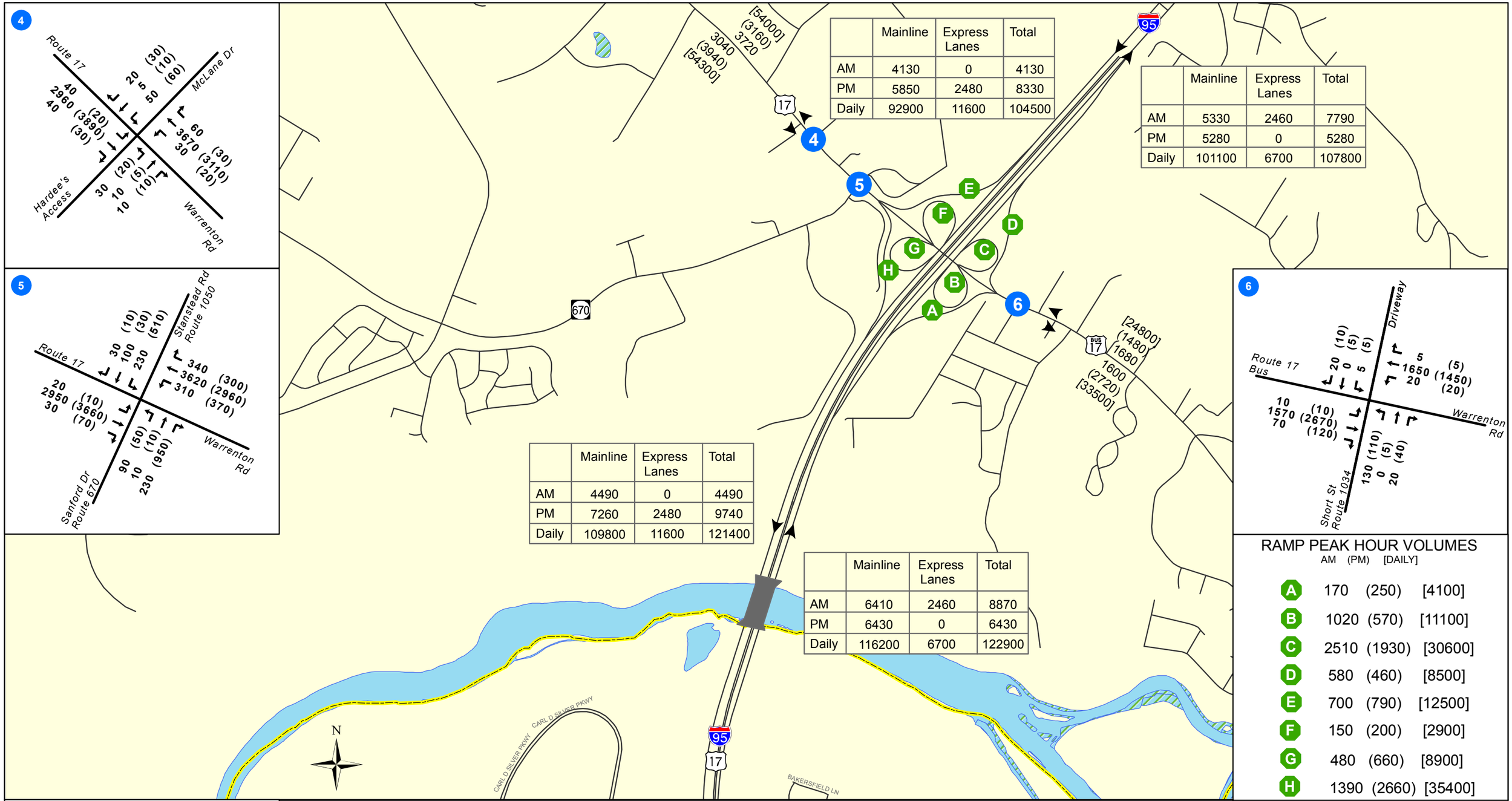
2040 No-Build Traffic Volumes

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker



	Mainline	Express Lanes	Total
AM	4130	0	4130
PM	5850	2480	8330
Daily	92900	11600	104500

	Mainline	Express Lanes	Total
AM	5330	2460	7790
PM	5280	0	5280
Daily	101100	6700	107800

	Mainline	Express Lanes	Total
AM	4490	0	4490
PM	7260	2480	9740
Daily	109800	11600	121400

	Mainline	Express Lanes	Total
AM	6410	2460	8870
PM	6430	0	6430
Daily	116200	6700	122900

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
A	170	(250)	[4100]
B	1020	(570)	[11100]
C	2510	(1930)	[30600]
D	580	(460)	[8500]
E	700	(790)	[12500]
F	150	(200)	[2900]
G	480	(660)	[8900]
H	1390	(2660)	[35400]

I-95 Interchange Modification Report

Figure 3-4B: 2040 No-Build Conditions Peak Hour Volumes

Legend

- Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

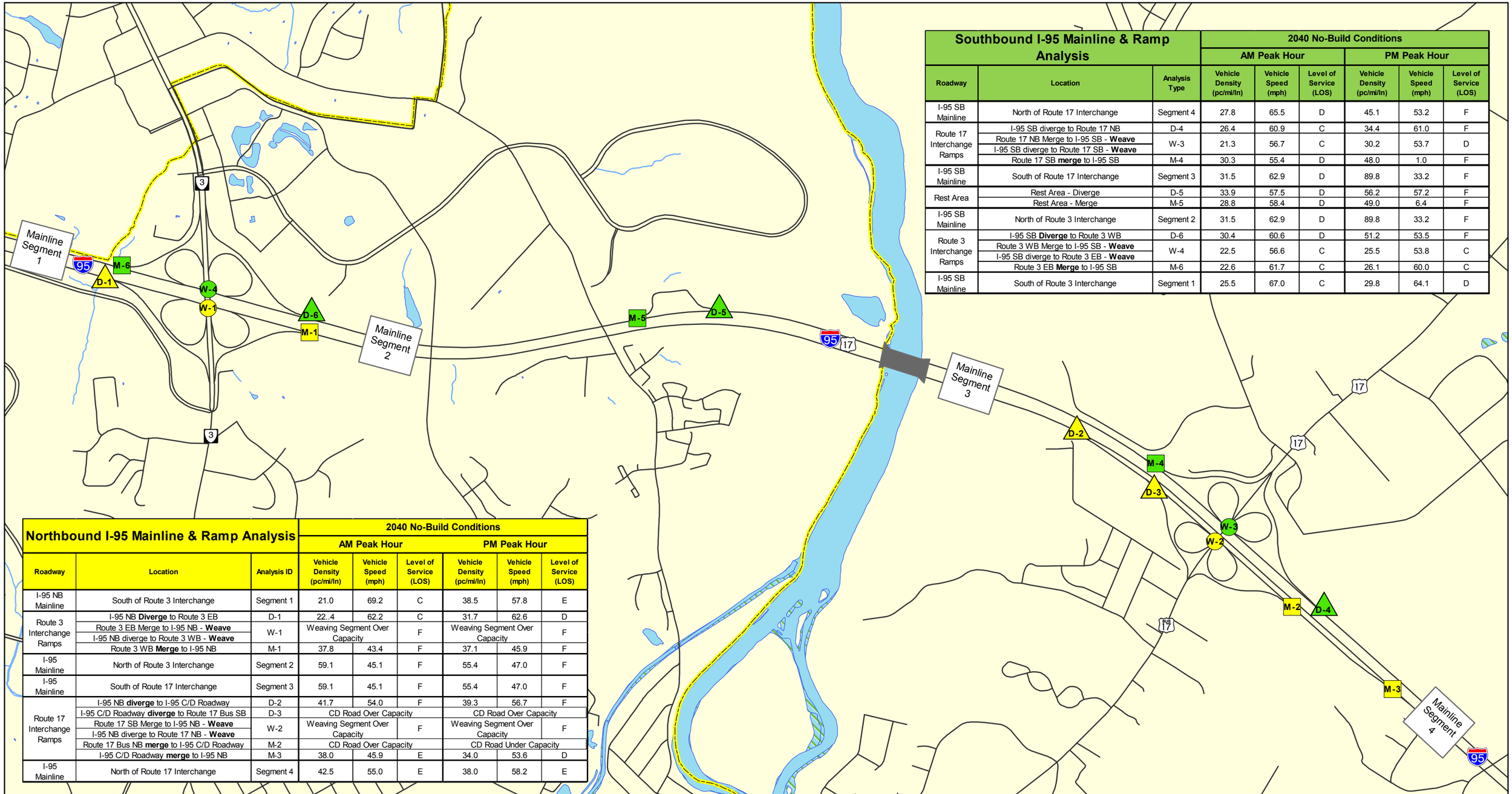
2040 No-Build

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker



Southbound I-95 Mainline & Ramp Analysis			2040 No-Build Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis Type	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 SB Mainline	North of Route 17 Interchange	Segment 4	27.8	65.5	D	45.1	53.2	F
Route 17 Interchange Ramps	I-95 SB diverge to Route 17 NB	D-4	26.4	60.9	C	34.4	61.0	F
	Route 17 NB Merge to I-95 SB - **Weave**	W-3	21.3	56.7	C	30.2	53.7	D
	I-95 SB diverge to Route 17 SB - **Weave**							
	Route 17 SB **merge** to I-95 SB	M-4	30.3	55.4	D	48.0	1.0	F
I-95 SB Mainline	South of Route 17 Interchange	Segment 3	31.5	62.9	D	89.8	33.2	F
Rest Area	Rest Area - Diverge	D-5	33.9	57.5	D	56.2	57.2	F
	Rest Area - Merge	M-5	28.8	58.4	D	49.0	6.4	F
I-95 SB Mainline	North of Route 3 Interchange	Segment 2	31.5	62.9	D	89.8	33.2	F
Route 3 Interchange Ramps	I-95 SB **Diverge** to Route 3 WB	D-6	30.4	60.6	D	51.2	53.5	F
	Route 3 WB Merge to I-95 SB - **Weave**	W-4	22.5	56.6	C	25.5	53.8	C
	I-95 SB diverge to Route 3 EB - **Weave**							
	Route 3 EB **Merge** to I-95 SB	M-6	22.6	61.7	C	26.1	60.0	C
I-95 SB Mainline	South of Route 3 Interchange	Segment 1	25.5	67.0	C	29.8	64.1	D

Northbound I-95 Mainline & Ramp Analysis			2040 No-Build Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis ID	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 NB Mainline	South of Route 3 Interchange	Segment 1	21.0	69.2	C	38.5	57.8	E
Route 3 Interchange Ramps	I-95 NB **Diverge** to Route 3 EB	D-1	22..4	62.2	C	31.7	62.6	D
	Route 3 EB Merge to I-95 NB - **Weave**	W-1	Weaving Segment Over Capacity		F	Weaving Segment Over Capacity		F
	I-95 NB diverge to Route 3 WB - **Weave**							
	Route 3 WB **Merge** to I-95 NB	M-1	37.8	43.4	F	37.1	45.9	F
I-95 Mainline	North of Route 3 Interchange	Segment 2	59.1	45.1	F	55.4	47.0	F
I-95 Mainline	South of Route 17 Interchange	Segment 3	59.1	45.1	F	55.4	47.0	F
Route 17 Interchange Ramps	I-95 NB **diverge** to I-95 C/D Roadway	D-2	41.7	54.0	F	39.3	56.7	F
	I-95 C/D Roadway **diverge** to Route 17 Bus SB	D-3	CD Road Over Capacity			CD Road Over Capacity		
	Route 17 SB Merge to I-95 NB - **Weave**	W-2	Weaving Segment Over Capacity		F	Weaving Segment Over Capacity		F
	I-95 NB diverge to Route 17 NB - **Weave**							
	Route 17 Bus NB **merge** to I-95 C/D Roadway	M-2	CD Road Over Capacity			CD Road Under Capacity		
	I-95 C/D Roadway **merge** to I-95 NB	M-3	38.0	45.9	E	34.0	53.6	D
I-95 Mainline	North of Route 17 Interchange	Segment 4	42.5	55.0	E	38.0	58.2	E

I-95 Interchange Modification Report

Figure 3-5: 2040 No-Build Traffic Operations

Legend

- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2040 No-Build Traffic Operations

NB SB

- D-3 / D-3 Diverge Junction
- M-3 / M-3 Merge Junction
- W-3 / W-3 Weave Junction

N

1,600 800 0 1,600 Feet

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I-95 Interchange Modification Report

Figure 5-1 : Alternative 1

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 1

600 300 0 600 FEET

SHEET 1

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I-95 Interchange Modification Report

Figure 5-1 : Alternative 1

Legend

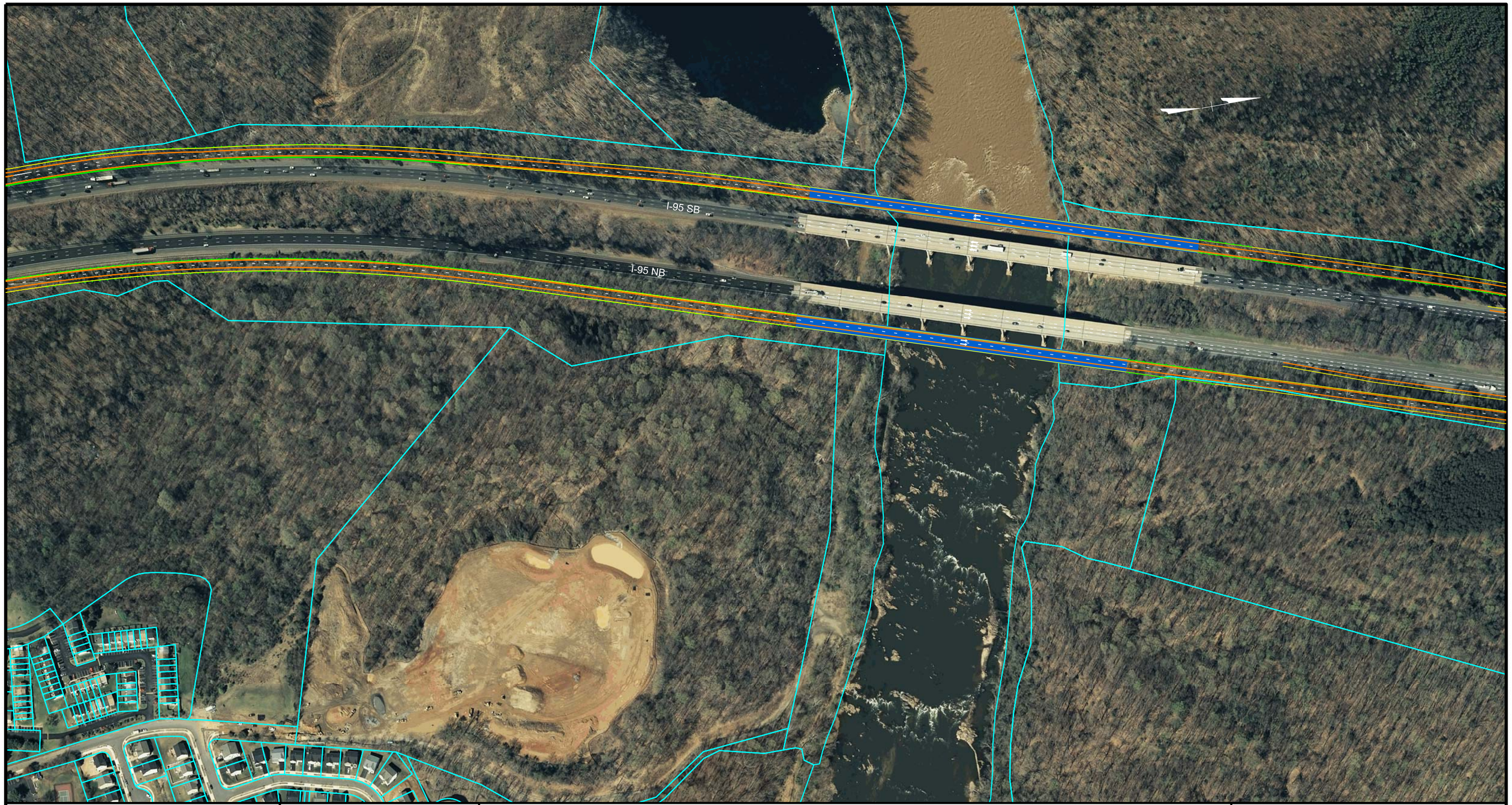
- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 1

600 300 0 600 FEET

SHEET 2

Baker



I-95 Interchange Modification Report

Figure 5-1 : Alternative 1

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 1

600 300 0 600 FEET

SHEET 3

Baker

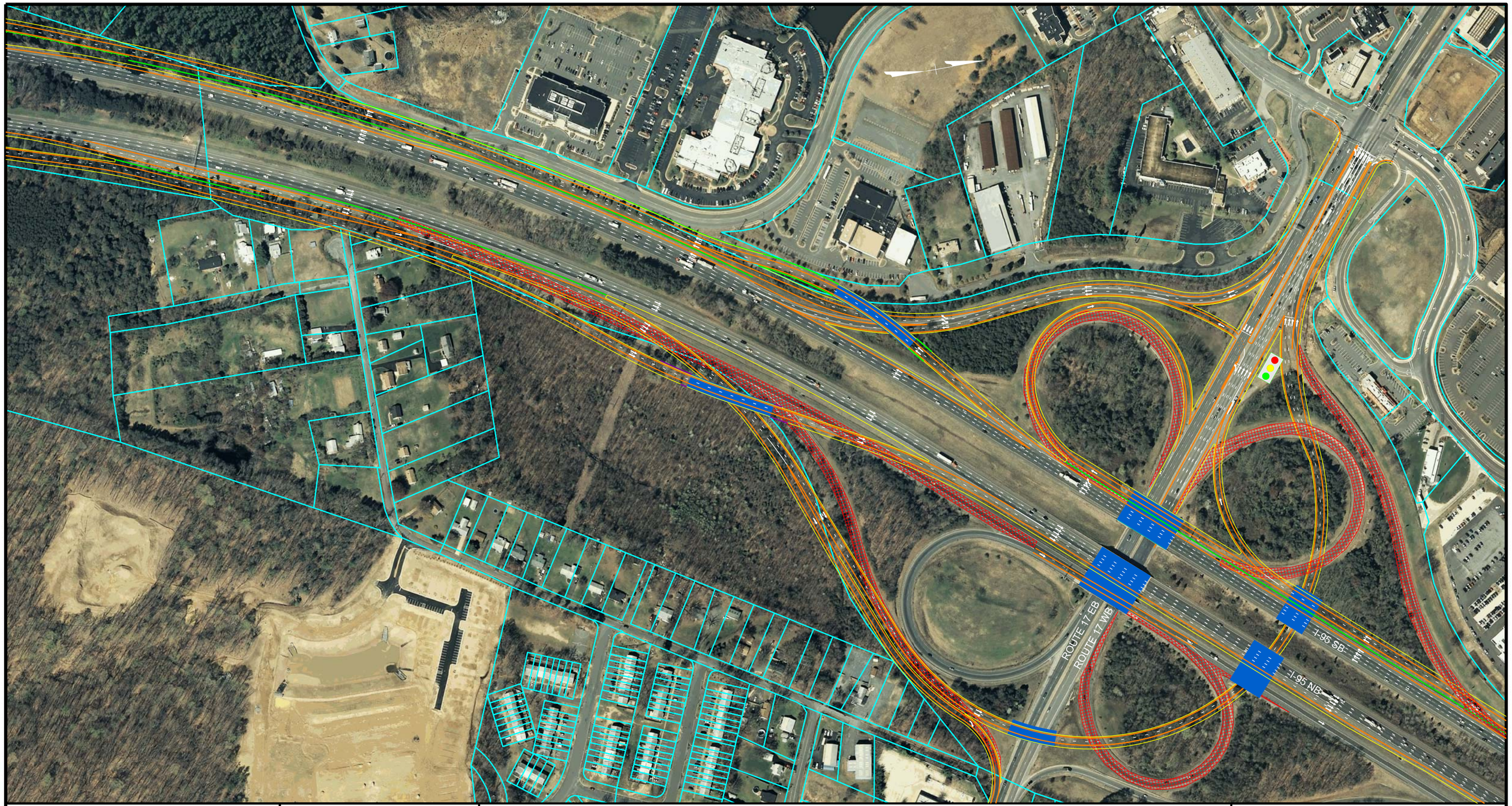


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Figure 5-1 : Alternative 1

Legend

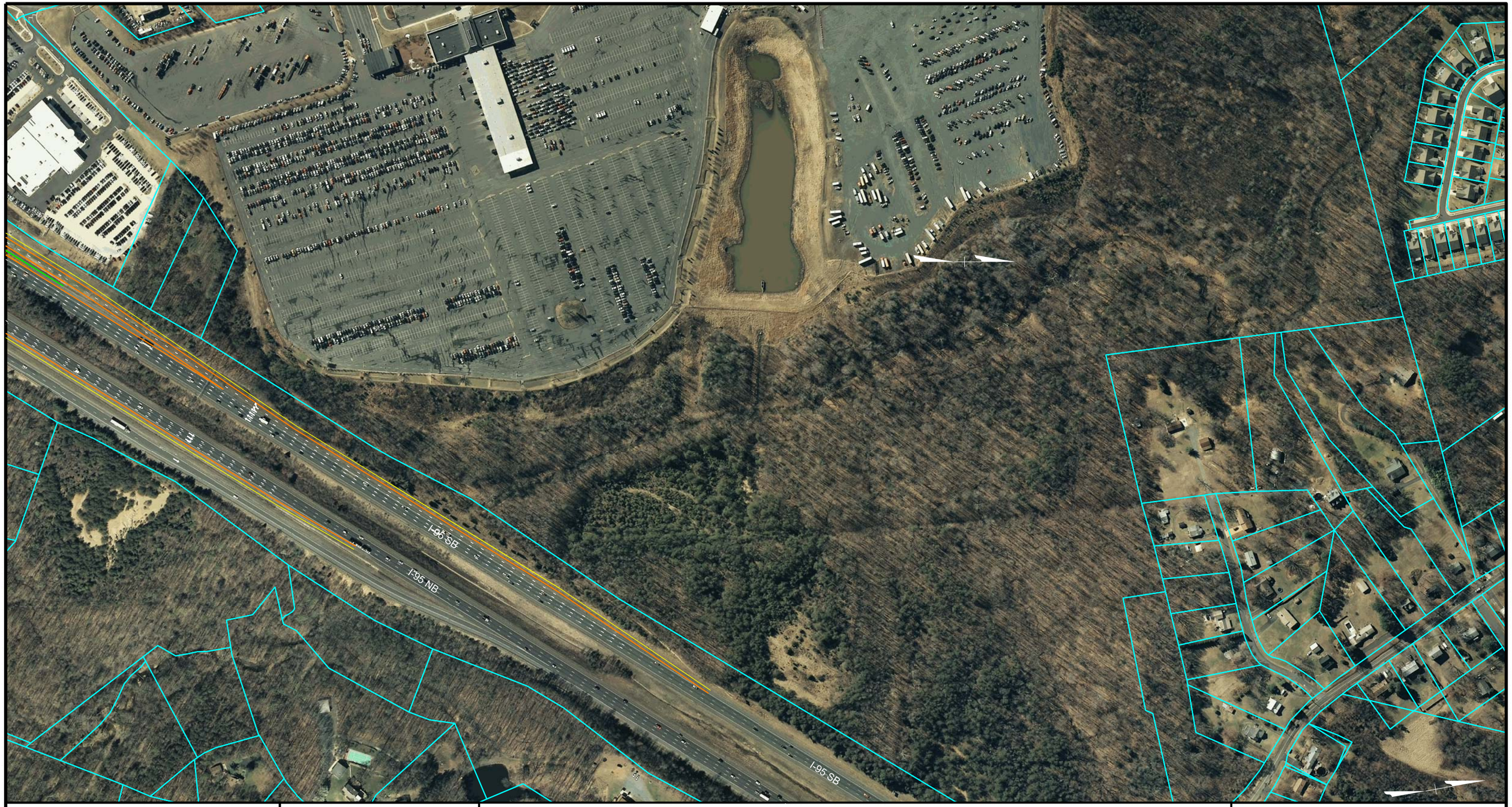
- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 1

600 300 0 600 FEET

SHEET 4

Baker



I-95 Interchange Modification Report

Figure 5-1 : Alternative 1

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 1

600 300 0 600 FEET

SHEET 5

Baker

I-95 Interchange Modification Report

Figure 5-1B : Alternative 1B

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 1B

800 400 0 800 FEET

Baker

I-95 Interchange Modification Report

Figure 5-2A : Alternative 2A

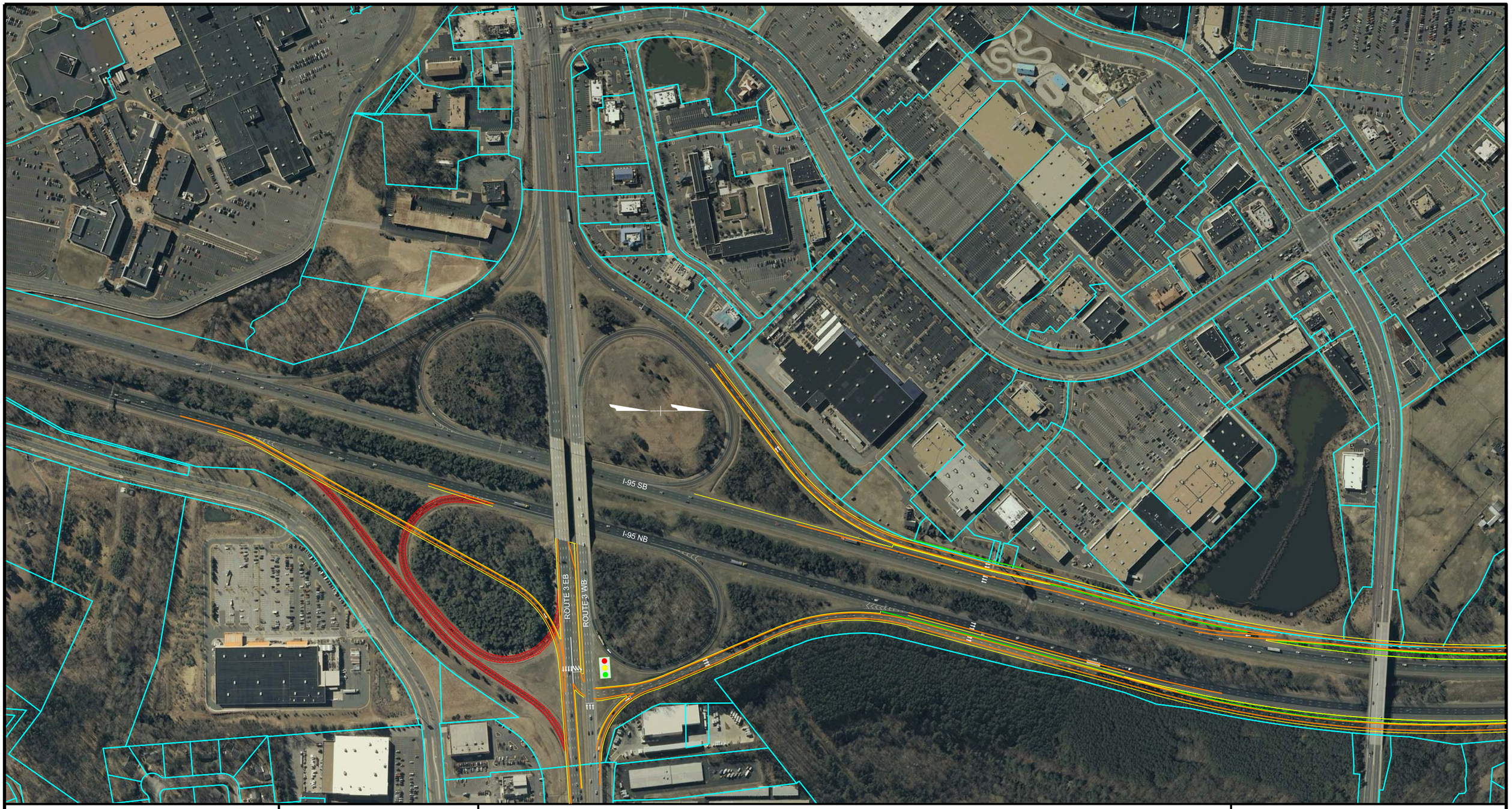
Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 2A

600 300 0 600 FEET

Baker



I-95 Interchange Modification Report

Figure 5-3A : Alternative 3A

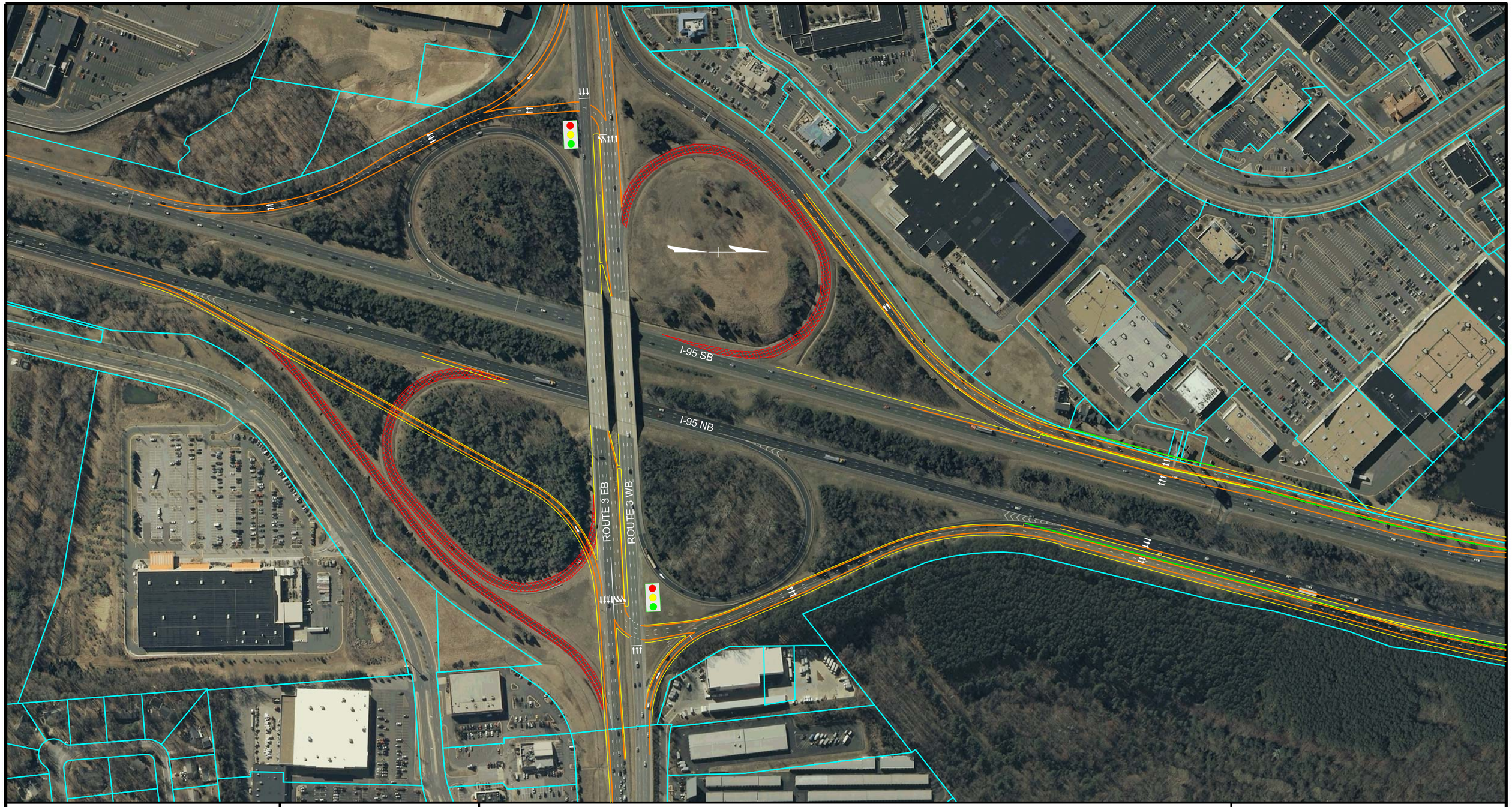
Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 3A

800 400 0 800 FEET

Baker



I-95 Interchange Modification Report

Figure 5-3B : Alternative 3B

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 3B

600 300 0 600 FEET

Baker

I-95 Interchange Modification Report

Figure 5-4A : Alternative 4A

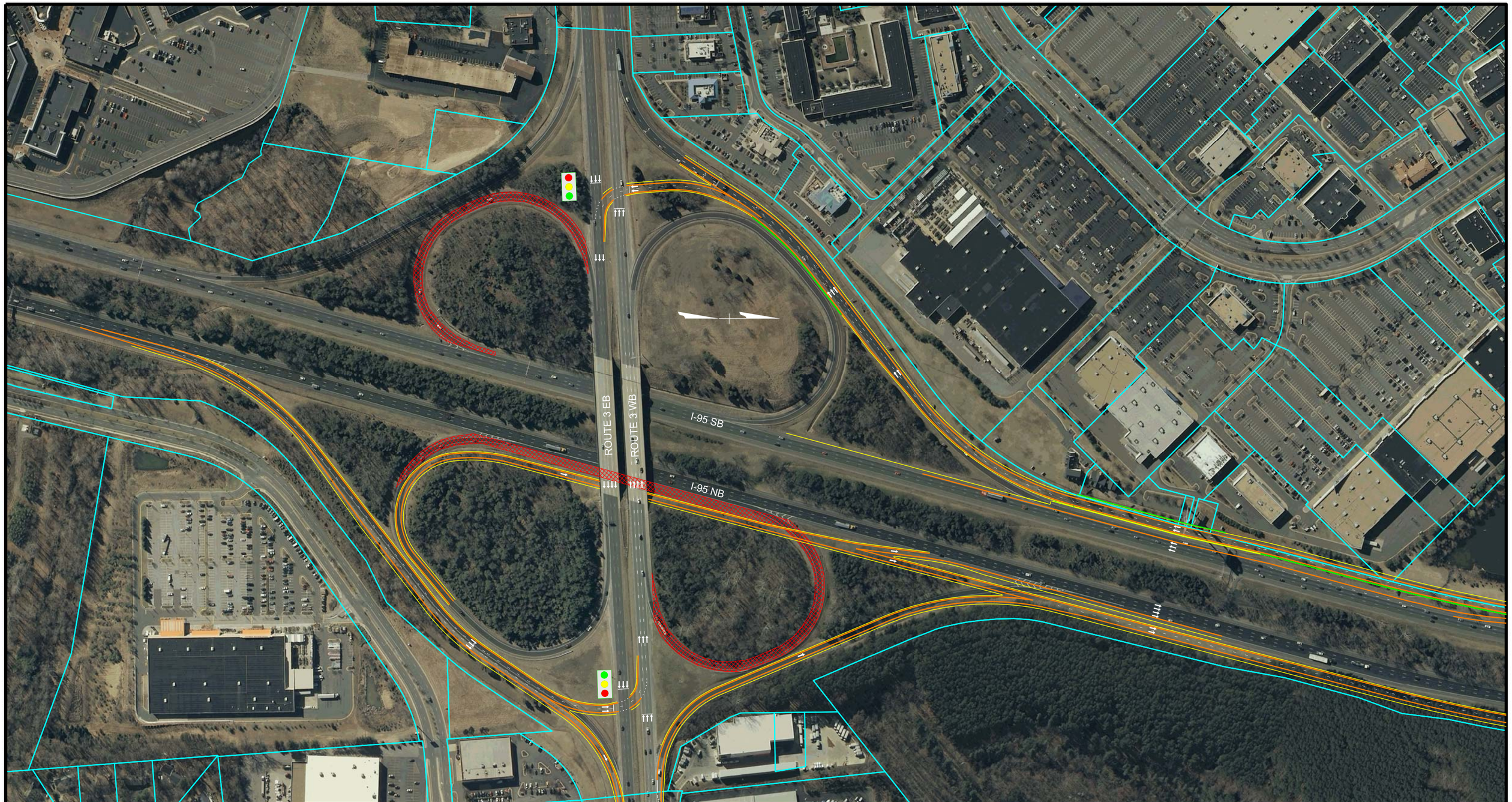
Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 4A

800 400 0 800 FEET

Baker



I-95 Interchange Modification Report

Figure 5-4B : Alternative 4B

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 4B

600 300 0 600 FEET

Baker

I-95 Interchange Modification Report

Figure 5-5 : Alternative 5

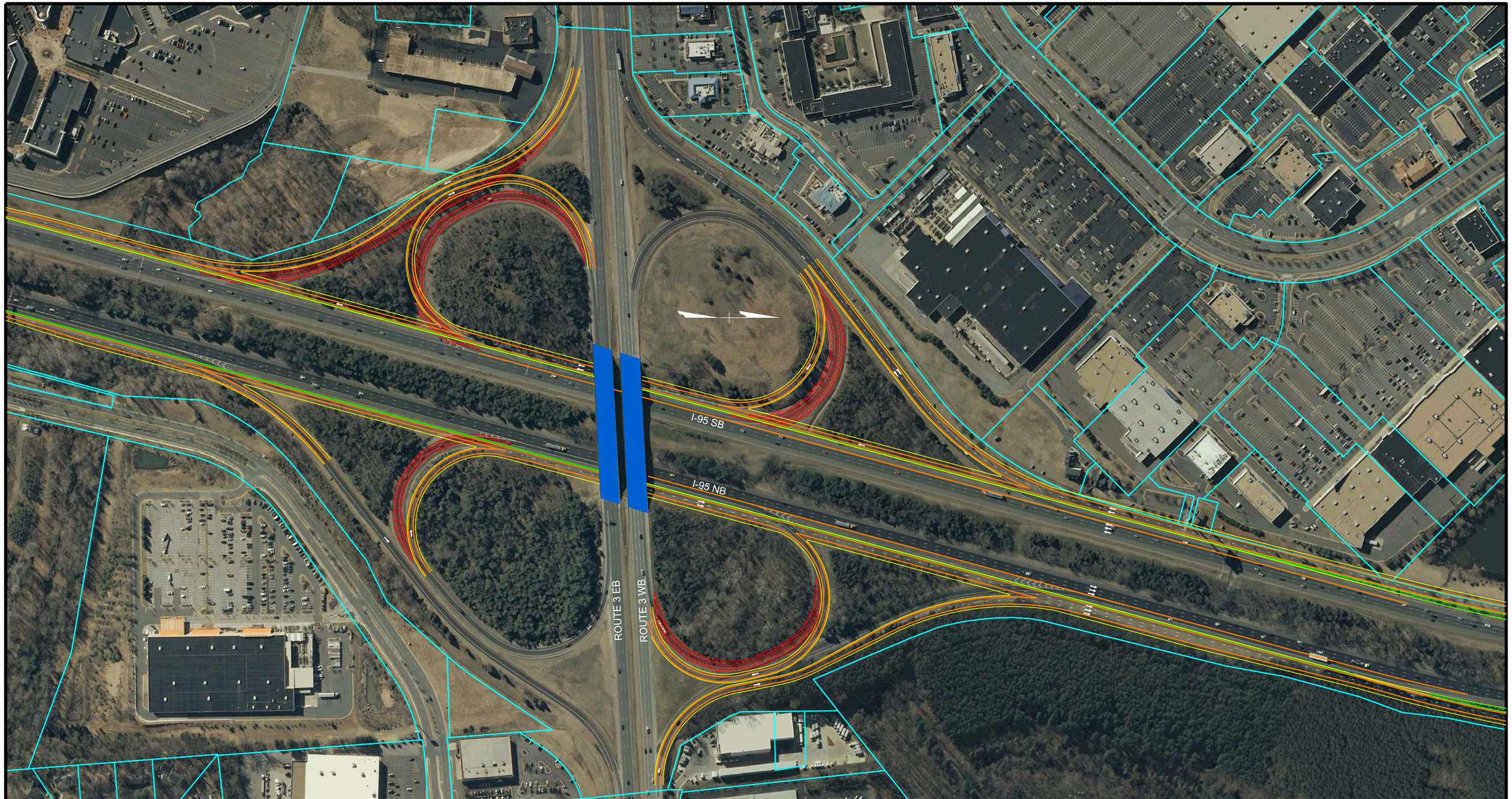
Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 5

600 300 0 600 FEET

Baker



I-95 Interchange Modification Report

Figure 5-6 : Alternative 6

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 6

600 300 0 600 FEET

Baker

I-95 Interchange Modification Report

Figure 5-7 : Alternative 7

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 7

600 300 0 600 FEET

SHEET 1

Baker

I-95 Interchange Modification Report

Figure 5-7 : Alternative 7

Legend

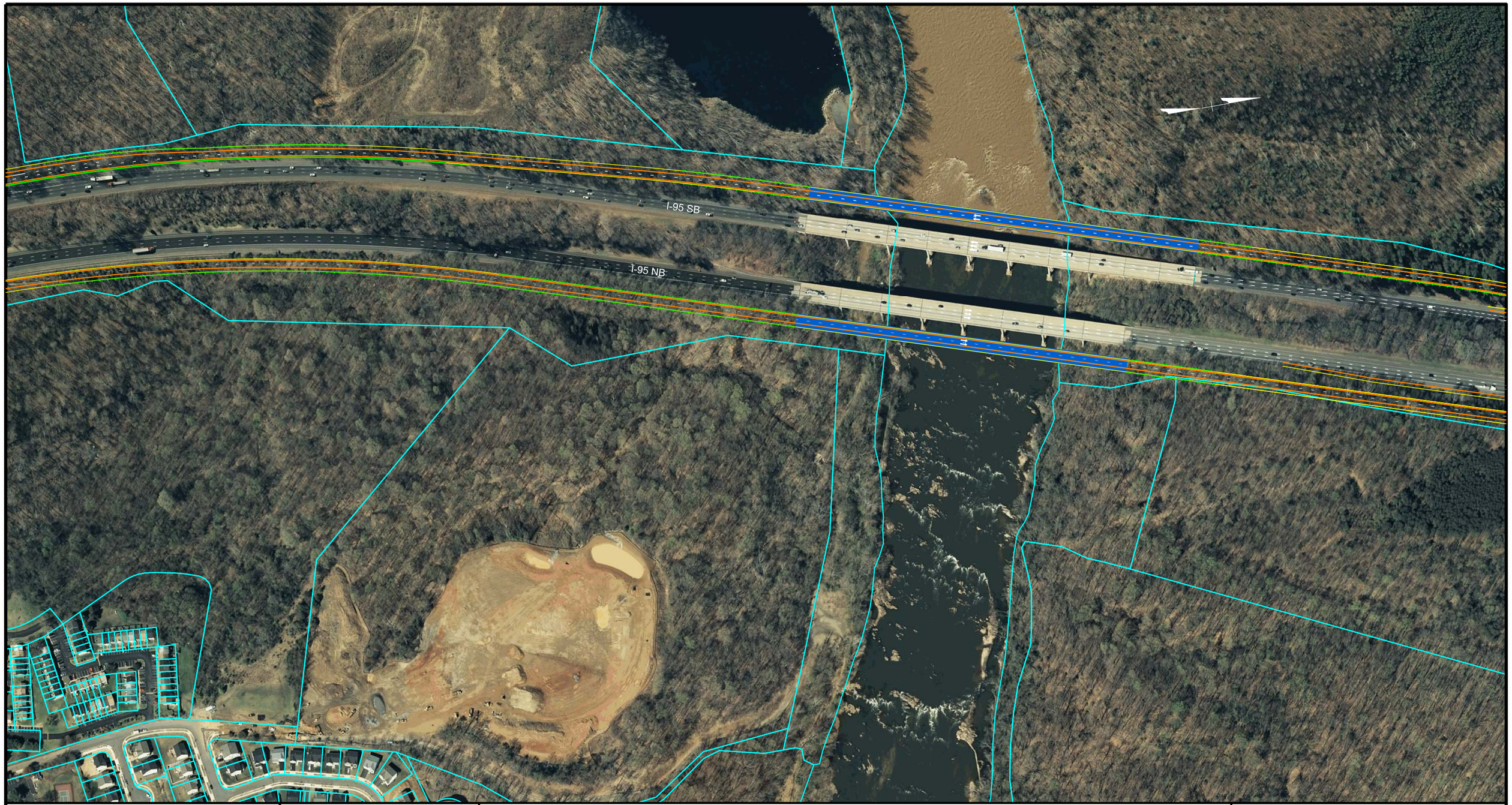
- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 7

600 300 0 600 FEET

SHEET 2

Baker



I-95 Interchange Modification Report

Figure 5-7 : Alternative 7

Legend

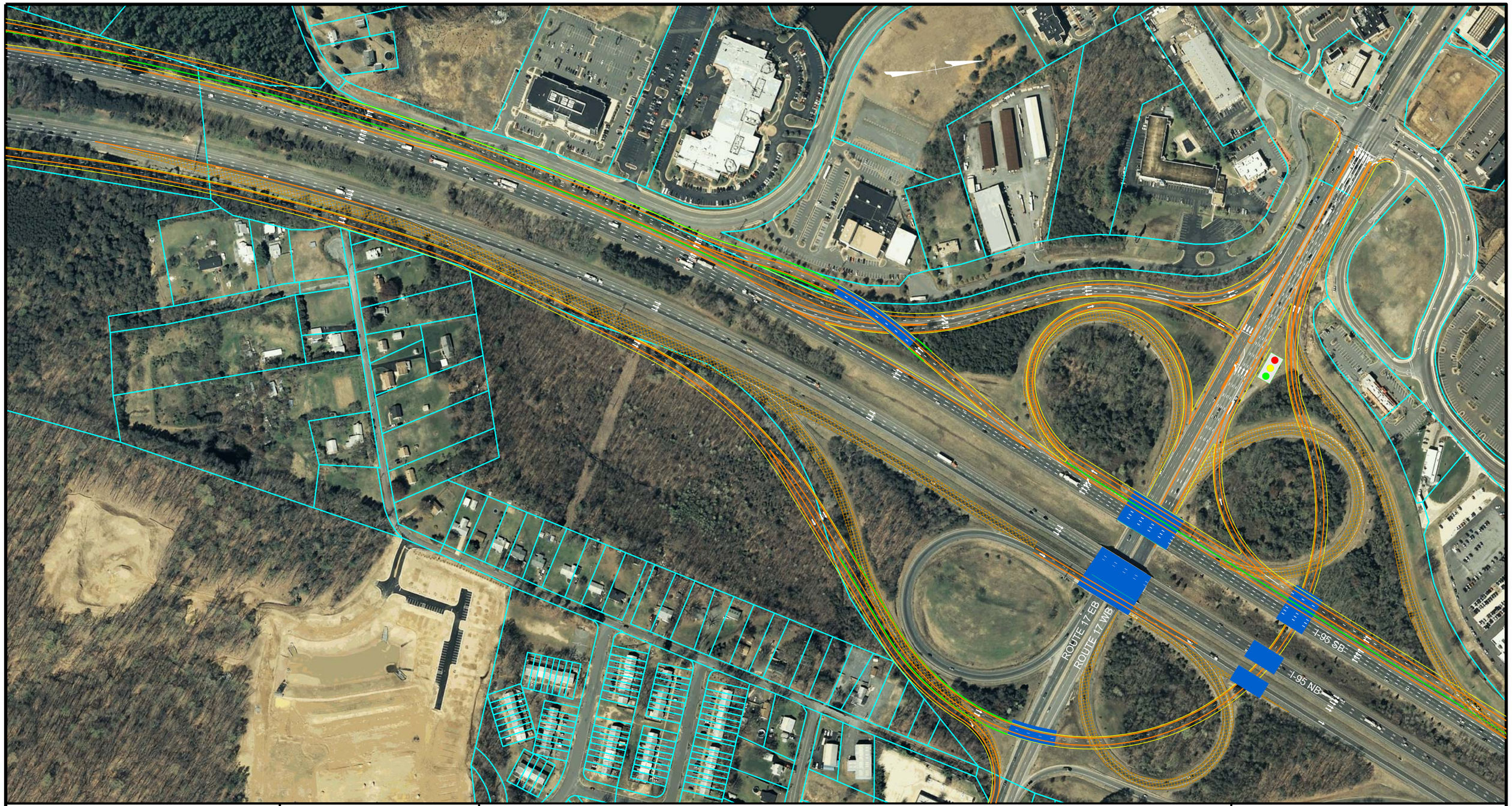
- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 7

600 300 0 600 FEET

SHEET 3

Baker



I-95 Interchange Modification Report

Figure 5-7 : Alternative 7

Legend

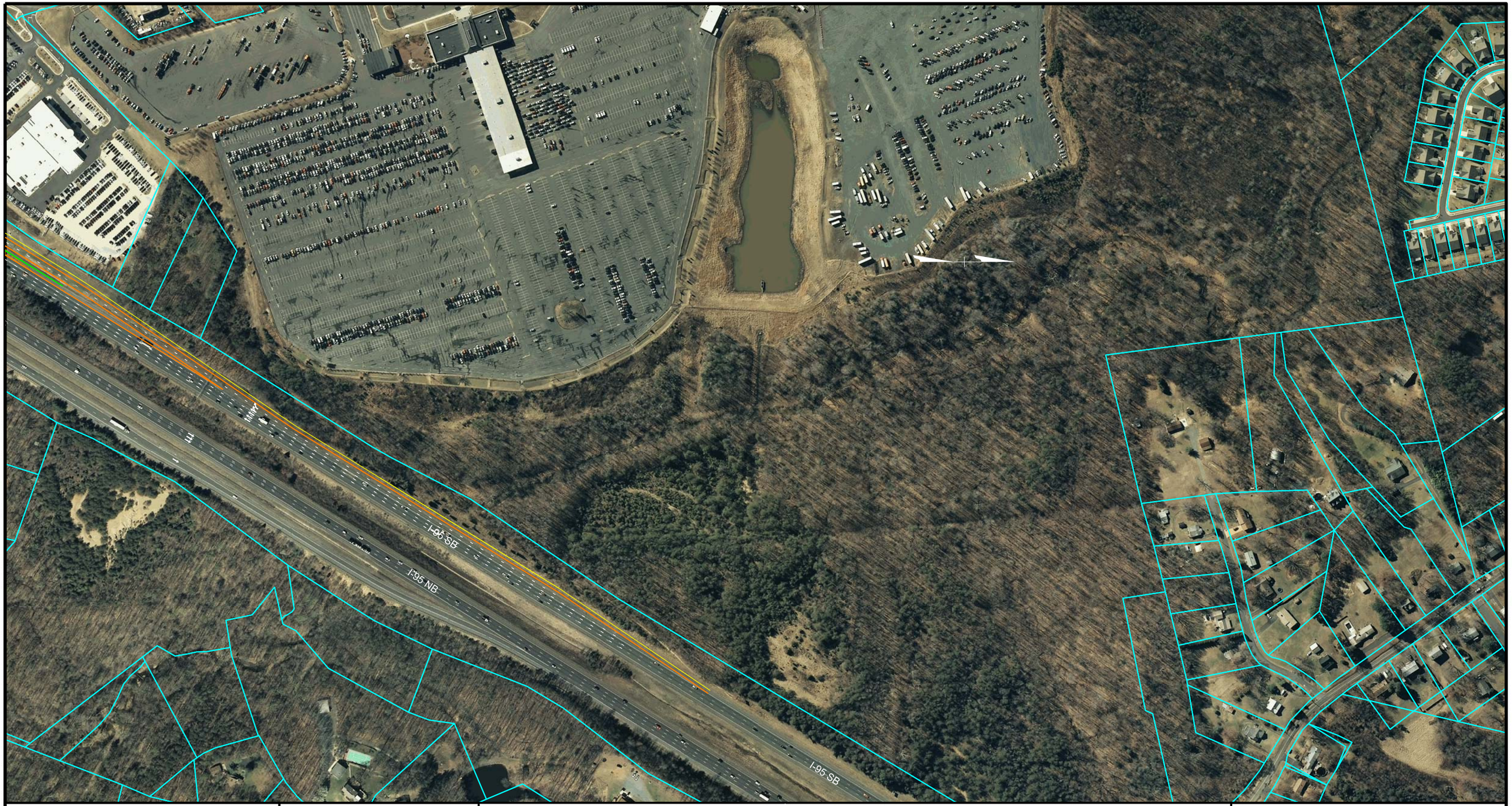
- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 7

600 300 0 600 FEET

SHEET 4

Baker



I-95 Interchange Modification Report

Figure 5-7 : Alternative 7

Legend

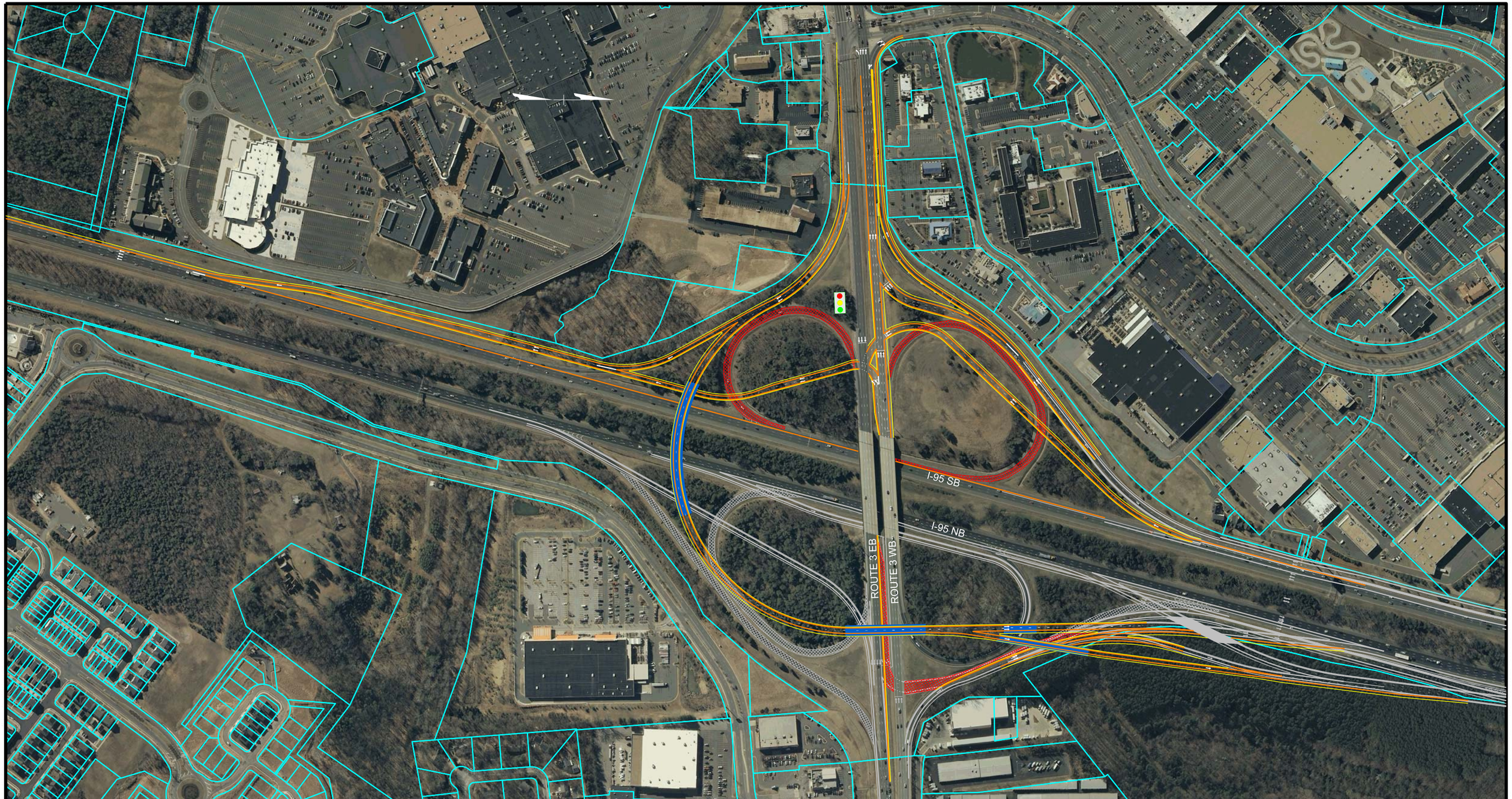
- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 7

600 300 0 600 FEET

SHEET 5

Baker



I-95 Interchange Modification Report

Figure 5-8A : Alternative 8A

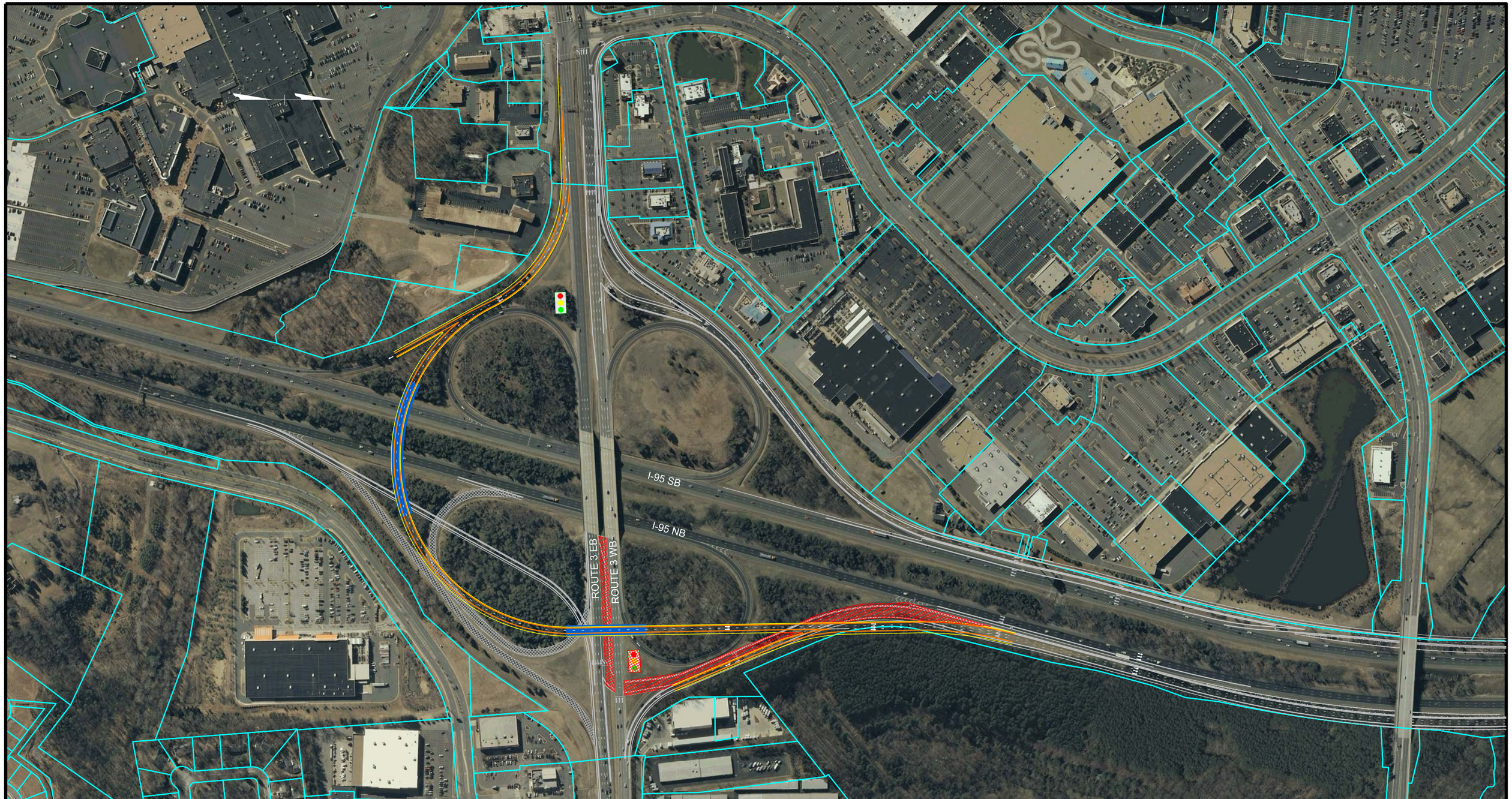
Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 8A

800 400 0 800 FEET

Baker



I-95 Interchange Modification Report

Figure 5-8B : Alternative 8B

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

ALTERNATIVE 8B

800 400 0 800 FEET

Baker

Table 5-1: Route 3 Interchange Alternative Screening Analysis

A		B				C		D	E	F	G
Alternative	Description	Impact on I-95/Route 3 Weaves				2040 Traffic and Operations on Proposed CD Lanes @ River Density (pc/mi/ln) and LOS		Requires New Signals on Route 3	Other Comments	Recommendation	Diagram
		Removes NB I-95 Weave	Removes SB I-95 Weave	Removes EB Route 3 Weave	Removes WB Route 3 Weave	Northbound CD Road 2040 ADT Peak Hour Density and LOS (AM/PM)[1]	Southbound CD Road 2040 ADT Peak Hour Density and LOS (AM/PM)[1]	Additional Delay & Resulting LOS (AM/PM)[2]			
Alternative 1 (Base Alternative)	+ Start 2-lane NB CD lanes at EB to NB on-ramp + End 2-lane SB CD lanes at SB to WB off-ramp + Extend EB to NB on-loop ramp acceleration lane 1000 feet past the NB to WB off-ramp	NO	NO	NO	NO	15,500 Density: 11.8 (B) / 7.0 (A)	38,000 Density: 10.2 (A) / 34.4 (D)	None	Considered the minimal improvement for NB I-95.	NOT RECOMMENDED FOR FURTHER STUDY due to: serving low volumes on NB CD lanes and does not eliminate any Route 3 weaves	Figure 5-1
Alternative 1B	Base Alternative + Signal at end of SB CD lanes + Free-flow right turn to Silver	NO	NO	NO	NO	15,500 Density: 11.8 (B) / 7.0 (A)	38,000 Density: 10.2 (A) / 34.4 (D)	No new east side signal New west side signal Delay: 21.6 sec (C) / 152.5 sec (F)	High delay at new signal is due to traffic backing up the SB CD road which also happens without the signal.	RECOMMENDED THAT IMPROVEMENTS BE INCLUDED IN ALTERNATIVES CARRIED FORWARD	Figure 5-1B
Alternative 2A	Base Alternative + Provide option to enter NB CD lanes from I-95, 400 feet north of NB to EB off-loop ramp	NO	NO	NO	NO	27400 + Density: 19.9 (C) / 12.1 (B)	38,000 Density: 10.2 (A) / 34.4 (D)	None	Potential problem if large numbers of I-95 traffic destined for Route 17 uses the slip ramp. Will make a very congested weave situation.	NOT RECOMMENDED FOR FURTHER STUDY due to: potential dangerous and congested weave	Figure 5-2A
Alternative 2B	Base Alternative + Provide EB US 17 off ramp from I-95, 2000 feet north of NB to EB off-loop ramp.	NO	NO	NO	NO	18,800 Density: 12.7 (B) / 8.6 (A)	38,000 Density: 10.2 (A) / 34.4 (D)	None	Creates a shorter weave between Route 3 on traffic and Route 17 off traffic.	NOT RECOMMENDED FOR FURTHER STUDY due to: potential congested weave that would be created between Route 3 traffic entering the interstate and Route 17 traffic exiting the interstate.	No Diagram
Alternative 3A	Base Alternative + Remove EB to NB on-loop ramp and replace with triple lefts	YES	NO	YES	NO	46,800 Density: 47.4 (F) / 18.7 (C)	38,000 Density: 10.2 (A) / 34.4 (D)	New east side signal Delay: 16.3 sec (B) / 16.3 sec (B) No new west side signal	May require widening NB CD Road to 3 lanes	RECOMMENDED FOR FURTHER STUDY due to: good usage of CD lanes, eliminates some weaves, modest cost increase over Base condition, minimal increases in delay for Route 3	Figure 5-3A
Alternative 3B	Alternative 3A + Remove WB to SB on-loop ramp and replace with dual left turns	YES	YES	YES	YES	46,800 Density: 47.4 (F) / 18.7 (C)	38,000 Density: 10.2 (A) / 34.4 (D)	New east side signal Delay: 25.0 sec (C) / 16.5 sec (B) New west side signal Delay: 42.0 sec (D) / 7.4 sec (A)	May require widening NB CD Road to 3 lanes	NOT RECOMMENDED FOR FURTHER STUDY due to: significant additional delay for EB Route 3	Figure 5-3B
Alternative 4A	Base Alternative + Remove NB to WB off-loop ramp and replace with dual left turn from NB off-ramp + Relocate EB to NB on-ramp between bridge piers and abutment + Provide slip ramp between EB to NB on-ramp and NB CD lanes	YES	NO	YES	NO	27,400 Density: 19.9 (C) / 12.1 (B)	38,000 Density: 10.2 (A) / 34.4 (D)	New east side signal Delay: 14.3 sec (B) / 42.9 sec (D) No new west side signal	Requires barrier between mainline and EB Route 3 to NB I-95 on-ramp.	RECOMMENDED FOR FURTHER STUDY due to: good usage of CD lanes, eliminates some weaves, modest cost increase over Base condition, minimal increases in delay for Route 3	Figure 5-4A
Alternative 4B	Alterantive 4A + Remove SB to EB off-loop ramp and replace with left turn from SB off-ramp	YES	YES	YES	YES	27,400 Density: 19.9 (C) / 12.1 (B)	51,700 Density: 15.2 (B) / 58.0 (F)	New east side signal Delay: 15.7 sec (B) / 14.1 sec (B) New west side signal Delay: 16.9 sec (B) / 15.6 sec (B)	Requires widening SB CD Road to 3 lanes	NOT RECOMMENDED FOR FURTHER STUDY due to: Requires widening SB CD Road to 3 lanes	Figure5- 4B
Alternative 5	Base Alternative + Diverging Diamond at Route 3 with free-flow or signal-controlled ramps	YES	YES	NO	NO	46,800 Density: 47.4 (F) / 18.7 (C)	51,700 Density: 15.2 (B) / 58.0 (F)	New east side signal Delay: 22.7 sec (C) / 54.3 sec (D) New west side signal Delay: 174.2 sec (F) / 123.1 sec (F)	Requires widening SB CD Road to 3 lanes Through volumes on Route 3 exceeds capacity of cross-over signal.	NOT RECOMMENDED FOR FURTHER STUDY due to: New west side signal is expected to operate at LOS F add significant delay to Route 3 traffic. Maintains weaves on Route 3	Figure 5-5
Alternative 6	Continuous CD lanes through Route 3 in both directions	YES but still on CD Road	YES but still on CD Road	NO	NO	46,800 Density: 47.4 sec (F) / 18.7 sec (C)	51,700 Density: 15.2 (B) / 58.0 (F)	None	May require widening NB CD Road to 3 lanes Requires widening SB CD Road to 3 lanes Requires rebuilding Route 3 bridges	NOT RECOMMENDED FOR FURTHER STUDY due to: requires three lane CD Roads and does not completely eliminate any weaves at Route 3	Figure 5-6
Alternative 7	Alternative 3B + Move braided ramps from north of River to between Route 3 and Cowan Blvd	YES	YES	YES	YES	37,800 Density: 24.9 (C) / 20.0 (C)	38,000 Density: 10.2 (A) / 34.4 (D)	New east side signal Delay: 16.3 sec (B) / 16.3 sec (B) No new west side signal	Does not require 3 lanes on NB or SB CD Roads	NOT RECOMMENDED FOR FURTHER STUDY due to: requires reconstruction of Route 3 bridges	Figure 5-7
Alternative 8A	Alternative 7 + EB to NB Flyover Ramp	YES	NO	YES	NO	37,800 Density: 24.9 (C) / 20.0 (C)	38,000 Density: 10.2 (A) / 34.4 (D)	New west side signal (SB to EB) Delay: 7.0 (A) / 8.0 sec (A) New far west side signal (SB to WB ramp) Delay: 11.1 sec (B) / 485.7 sec (F)	High delay at new far west signal is due to traffic backing up the SB CD road which also happens without the signal. This is a potential longer-term solution that can be added to Alternative 7.	NOT RECOMMENDED FOR FURTHER STUDY due to: high construction cost and lower cost intermediate solutions exist; Regional bypasses could alleviate some of the need for the flyover.	Figure 5-8A
Alternative 8B	Alternative 3A + EB to NB Flyover Ramp	YES	NO	YES	NO	46,800 Density: 47.4 (F) / 18.7 (C)	38,000 Density: 10.2 (A) / 34.4 (D)	No new east side signal New west side signal Delay: 21.6 sec (C) / 152.5 sec (F)	This is a potential longer-term solution that can be added to Alternative 3A.	RECOMMENDED FOR FURTHER STUDY due to: alternative with most improvement to Route 3 operations.	Figure 5-8B

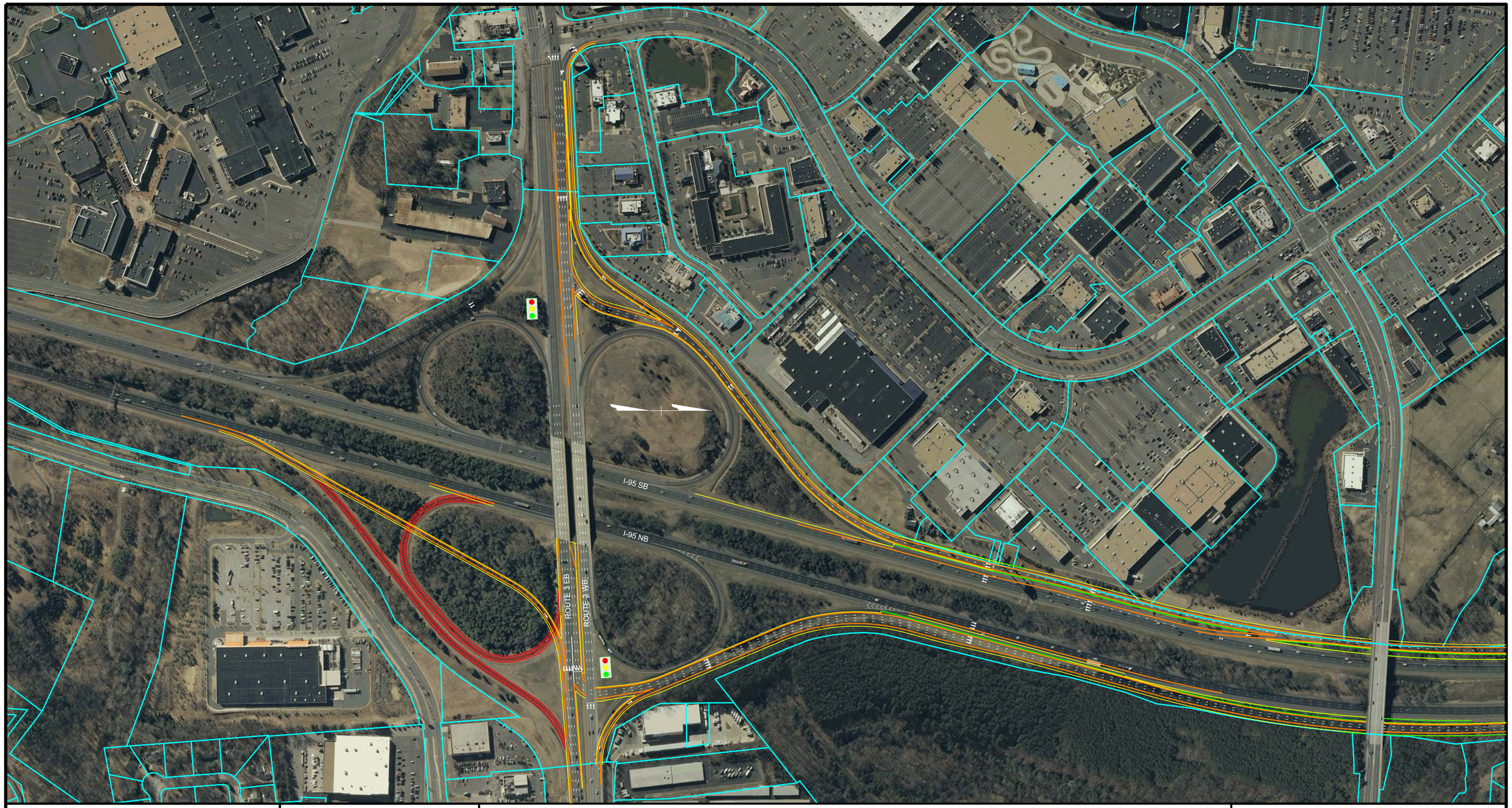
1. CD Road LOS Shading
Green shading indicates LOS A, LOS B, or LOS C for both peak hours
Yellow shading indicates LOS D for at least one peak hour
Red shading indicates LOS E or LOS F for at least one peak hour

2. Intersection LOS Shading
Green shading indicates NO NEW SIGNAL
Yellow shading indicates a new signal with LOS A, LOS B, or LOS C for both peak hours
Red shading indicates a new signal with LOS E or LOS F for at least one peak hour

Table 5-2. I-95 Mainline 2040 Peak Hour Traffic Operations for Build Alternatives

Alternative	Northbound Mainline @ Rappahannock River										Southbound Mainline @ Rappahannock River									
	AM Peak Hour					PM Peak Hour					AM Peak Hour					PM Peak Hour				
	Traffic Volume	3 lanes		4 lanes		Traffic Volume	3 lanes		4 lanes		Traffic Volume	3 lanes		4 lanes		Traffic Volume	3 lanes		4 lanes	
		Density	LOS	Density	LOS		Density	LOS	Density	LOS		Density	LOS	Density	LOS		Density	LOS	Density	LOS
No-Build	6410	59.1	F	31.9	D	6430	55.4	F	30.9	D	4490	31.5	D	21.5	C	7260	89.8	F	38.9	E
Alternative 1 (Base Alternative)	5650	42.8	E	25.7	C	5940	45.4	F	26.6	D	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C
Alternative 2A	4690	30.0	D	20.1	C	5330	36.0	E	22.9	C	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C
Alternative 2B	5550	41.2	E	25.1	C	5745	42.0	E	25.4	C	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C
Alternative 3A	2660	14.8	B	11.1	B	4550	27.5	D	18.9	C	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C
Alternative 3B	2660	14.8	B	11.1	B	4550	27.5	D	18.9	C	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C
Alternative 4A	4690	30.0	D	20.1	C	5330	36.0	E	22.9	C	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C
Alternative 4B	4690	30.0	D	20.1	C	5330	36.0	E	22.9	C	2970	17.7	B	13.1	B	3910	22.6	C	16.2	B
Alternative 5	2660	14.8	B	11.1	B	4550	27.5	D	18.9	C	2970	17.7	B	13.1	B	3910	22.6	C	16.2	B
Alternative 6	2660	14.8	B	11.1	B	4550	27.5	D	18.9	C	2970	17.7	B	13.1	B	3910	22.6	C	16.2	B
Alternative 7	4120	24.7	C	17.3	B	4390	26.1	D	18.1	C	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C
Alternative 8A	4120	24.7	C	17.3	B	4390	26.1	D	18.1	C	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C
Alternative 8B	4690	30.0	D	20.1	C	5330	36.0	E	22.9	C	3690	23.0	C	16.4	B	4930	32.0	D	21.1	C

Alternative	Northbound CD Road @ Rappahanock River						Southbound CD Road @ Rappahannock River					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Traffic Volume	Density	LOS	Traffic Volume	Density	LOS	Traffic Volume	Density	LOS	Traffic Volume	Density	LOS
No-Build	Not included in No-Build						Not included in No-Build					
Alternative 1 (Base Alternative)	1410	11.8	B	830	7.0	A	1090	10.2	A	3730	34.4	D
Alternative 2A	2370	19.9	C	1440	12.1	B	1090	10.2	A	3730	34.4	D
Alternative 2B	1510	12.7	B	1025	8.6	A	1090	10.2	A	3730	34.4	D
Alternative 3A	4400	47.4	F	2220	18.7	C	1090	10.2	A	3730	34.4	D
Alternative 3B	4400	47.4	F	2220	18.7	C	1090	10.2	A	3730	34.4	D
Alternative 4A	2370	19.9	C	1440	12.1	B	1090	10.2	A	3730	34.4	D
Alternative 4B	2370	19.9	C	1440	12.1	B	1810	15.2	B	4750	58.0	F
Alternative 5	4400	47.4	F	2220	18.7	C	1810	15.2	B	4750	58.0	F
Alternative 6	4400	47.4	F	2220	18.7	C	1810	15.2	B	4750	58.0	F
Alternative 7	2940	24.9	C	2380	20.0	C	1090	10.2	A	3730	34.4	D
Alternative 8A	2940	24.9	C	2380	20.0	C	1090	10.2	A	3730	34.4	D
Alternative 8B	2370	19.9	C	1440	12.1	B	1090	10.2	A	3730	34.4	D



I-95 Interchange Modification Report

Figure 6-1 : Preferred Alternative

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

PREFERRED ALTERNATIVE

800 400 0 800 FEET

SHEET 1

Baker

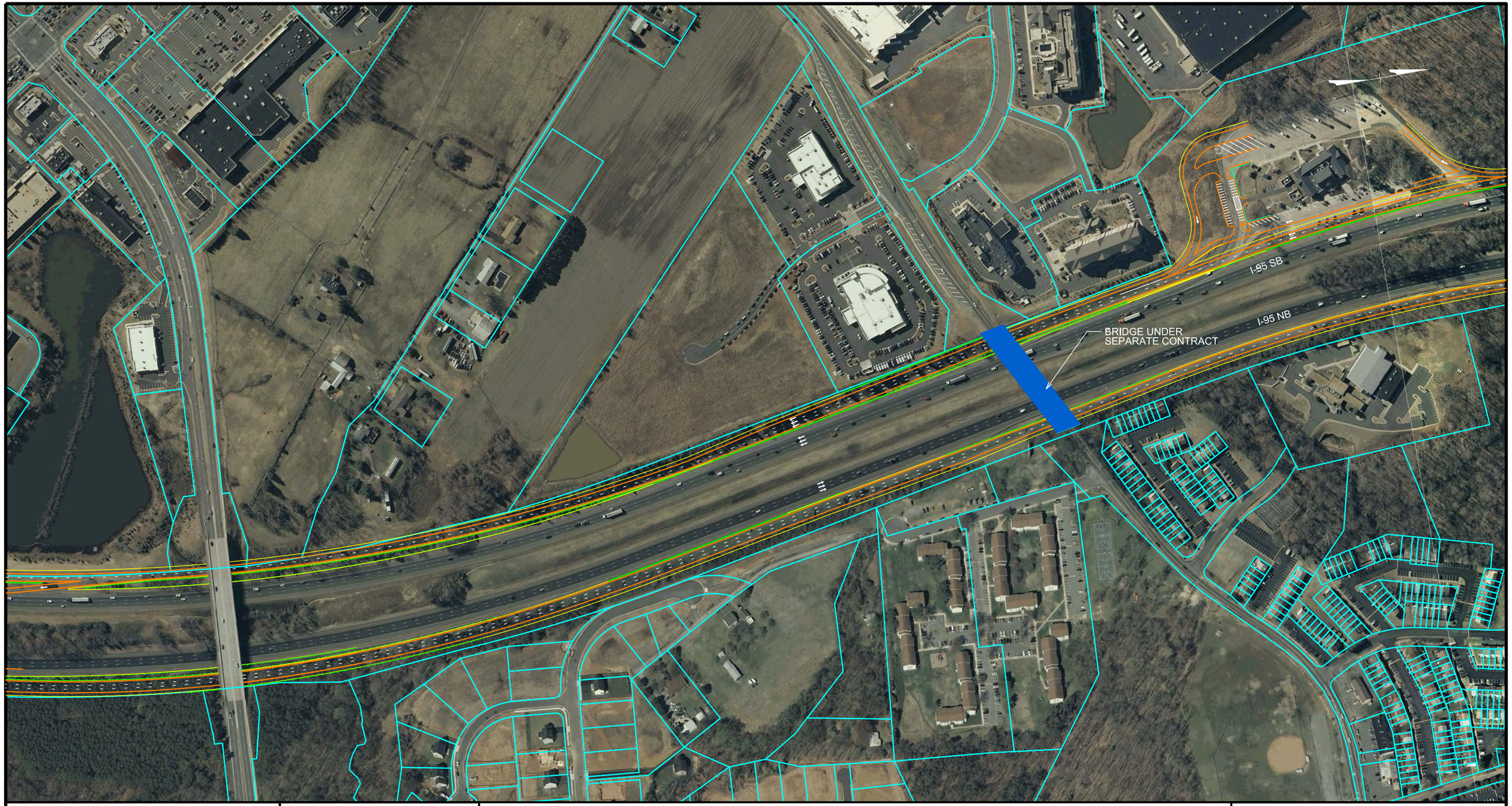


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Figure 6-1 : Preferred Alternative

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

PREFERRED ALTERNATIVE

600 300 0 600 FEET

SHEET 2

Baker

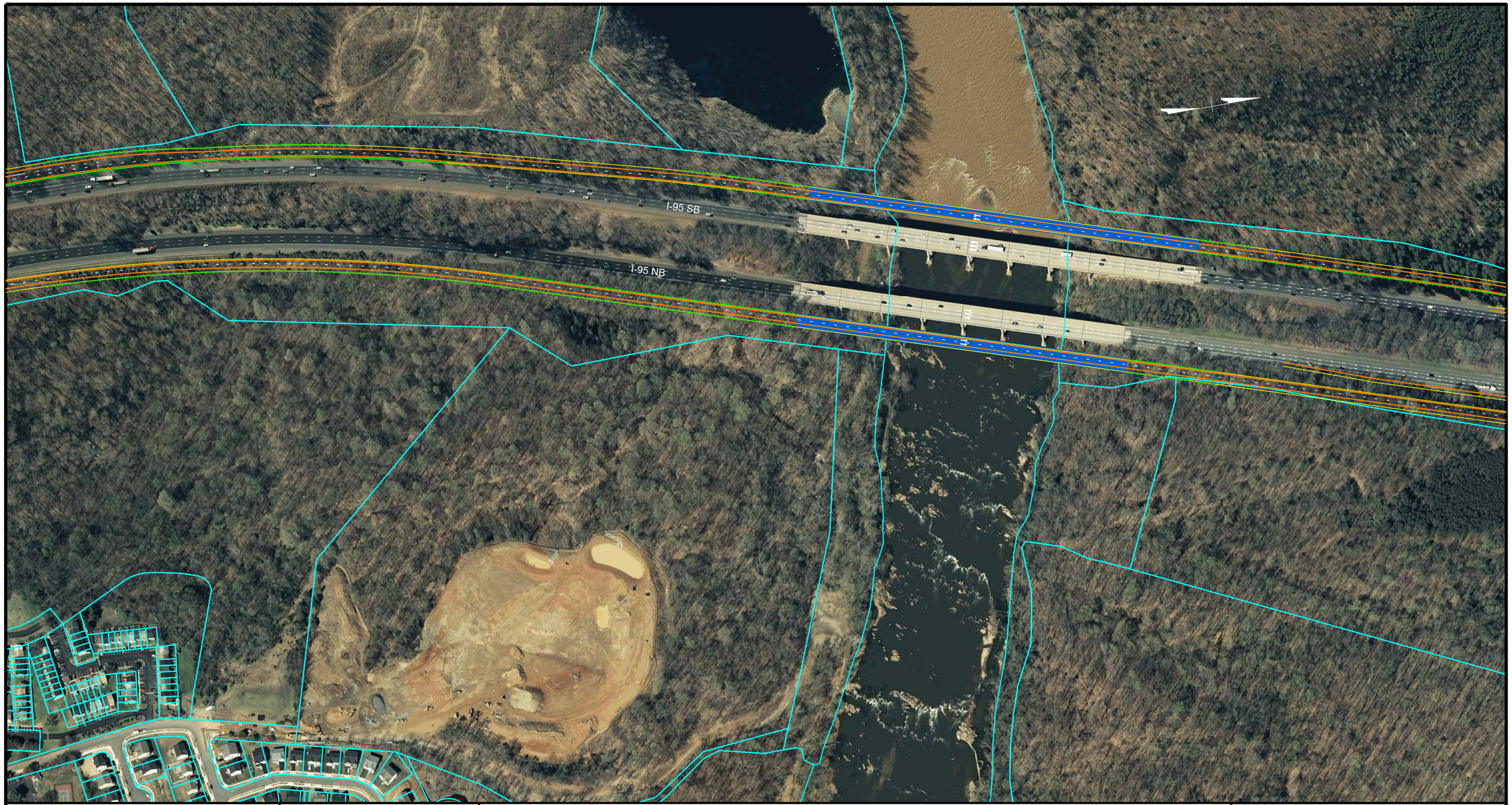

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Figure 6-1 : Preferred Alternative

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

PREFERRED ALTERNATIVE

600 300 0 600 FEET

SHEET 3

Baker

I-95 Interchange Modification Report

Figure 6-1 : Preferred Alternative

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

PREFERRED ALTERNATIVE

800 400 0 800 FEET

SHEET 4

Baker

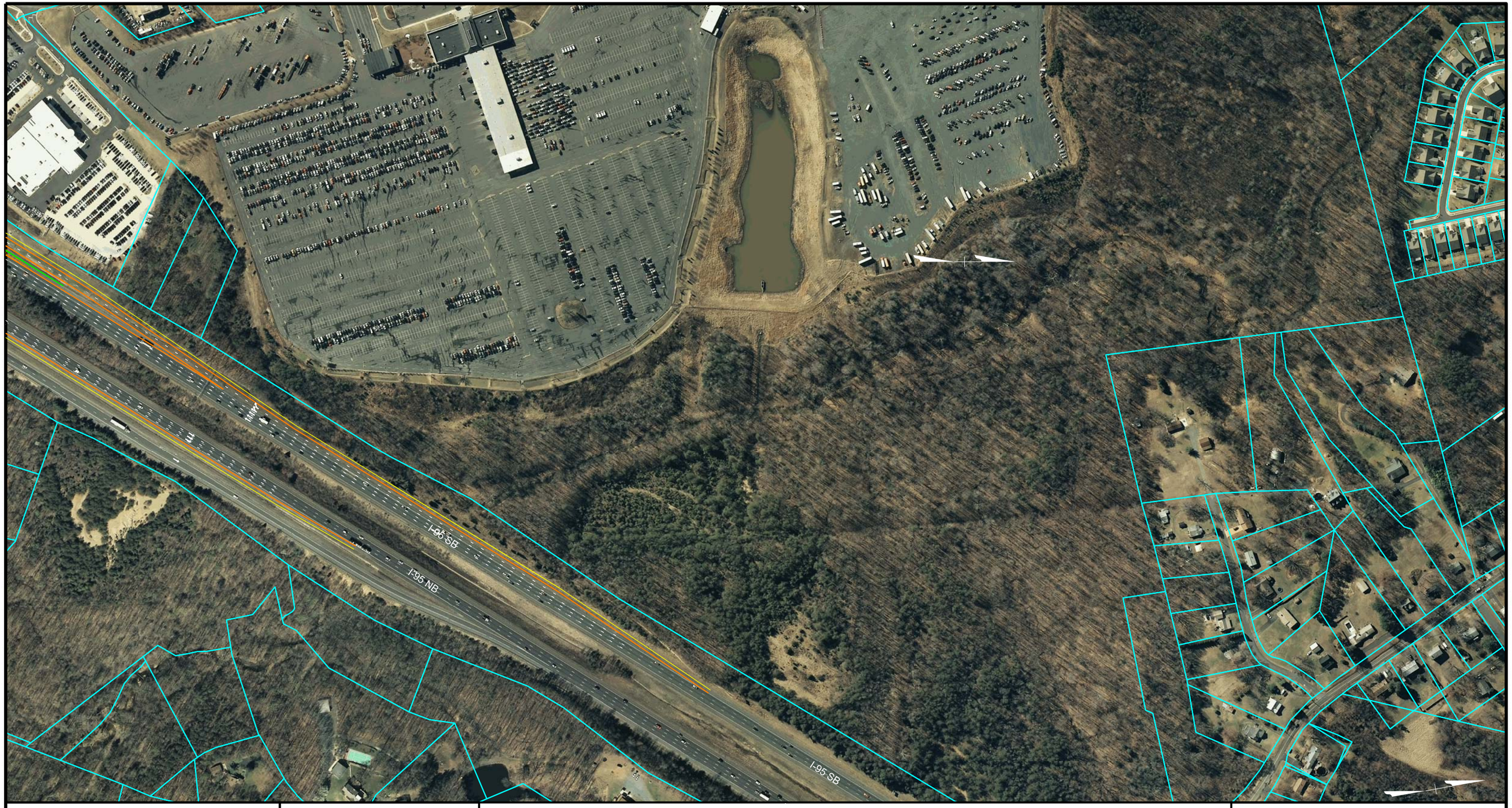

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Figure 6-1 : Preferred Alternative

Legend

- Edge of Pavement
- Edge of Shoulder
- Previous Construction Replaced by Flyover
- Existing Parcels
- Proposed Barriers
- Proposed Bridges

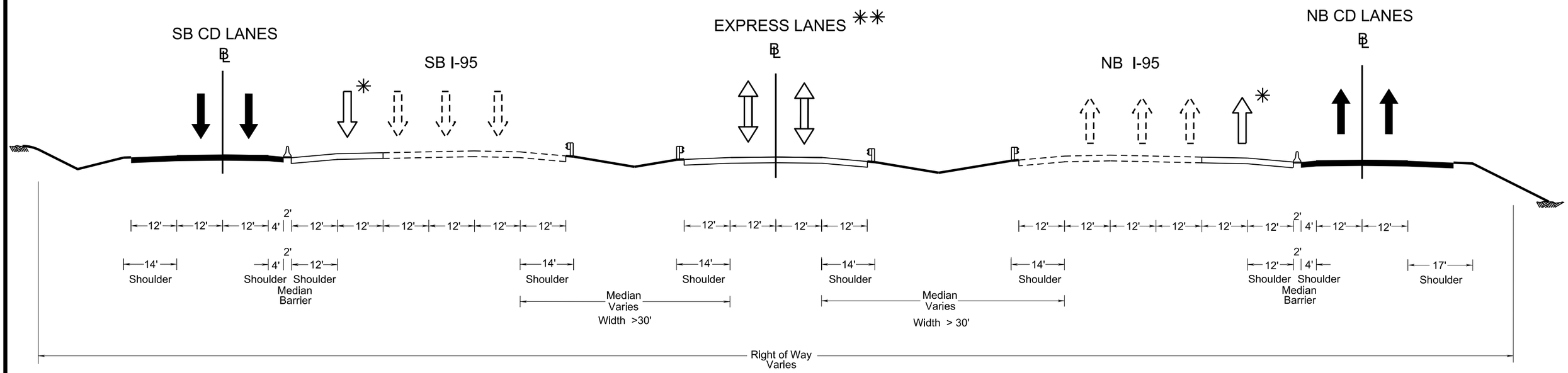
PREFERRED ALTERNATIVE

600 300 0 600 FEET

SHEET 5

Baker

CD ROAD DESIGN SPEED = 60 MPH



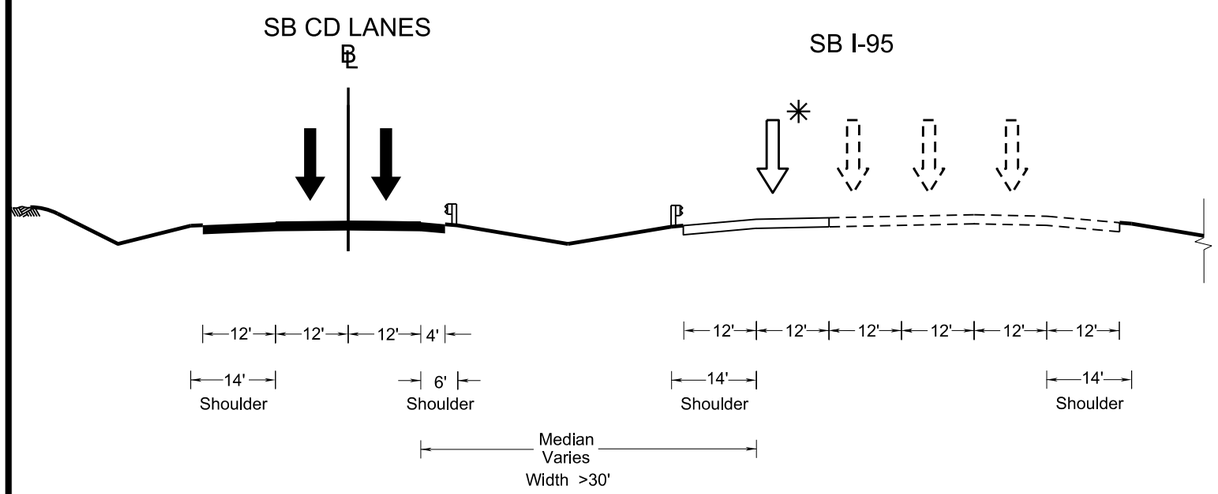


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Figure 6-3: Typical Sections

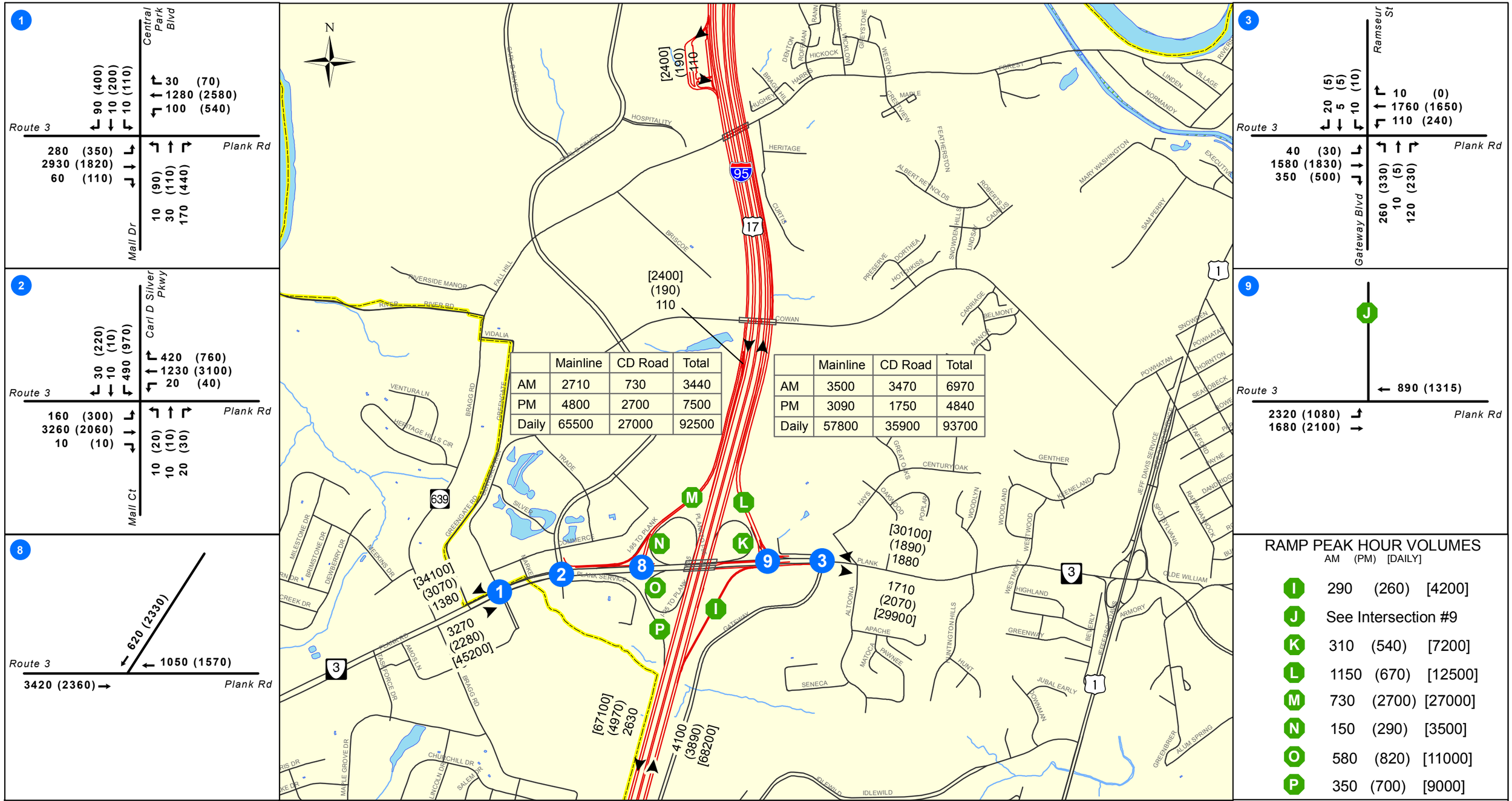
TYPICAL SECTIONS
(LOOKING NORTH)
N.T.S

800 400 0 800 FEET

* Reserved for possible future lane

** Reserved for possible express lane

Baker



	Mainline	CD Road	Total
AM	2710	730	3440
PM	4800	2700	7500
Daily	65500	27000	92500

	Mainline	CD Road	Total
AM	3500	3470	6970
PM	3090	1750	4840
Daily	57800	35900	93700

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
I	290	(260)	[4200]
J	See Intersection #9		
K	310	(540)	[7200]
L	1150	(670)	[12500]
M	730	(2700)	[27000]
N	150	(290)	[3500]
O	580	(820)	[11000]
P	350	(700)	[9000]

I-95 Interchange Modification Report

Figure 6-8A: 2020 Build Conditions Peak Hour Traffic Volumes

Legend

- # Analyzed Intersection
- Traffic Analysis Design
- Structures
- Corporate Boundary
- Roadways
- Streams
- Water
- Wetlands

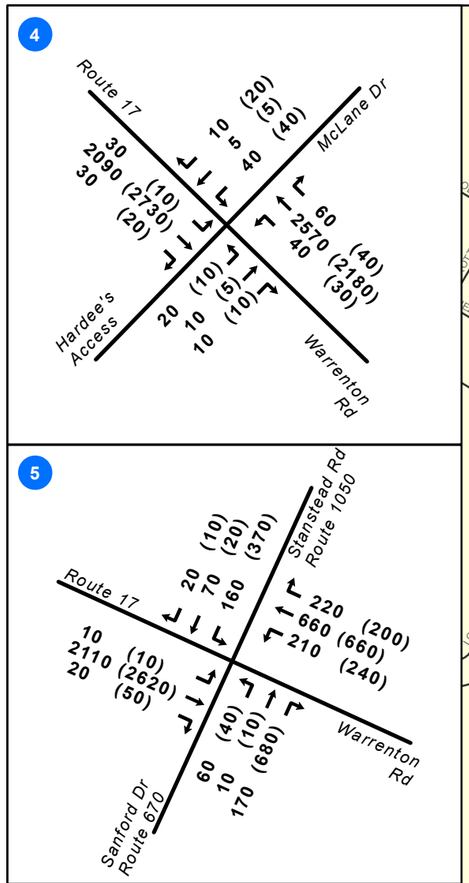
2020 Build

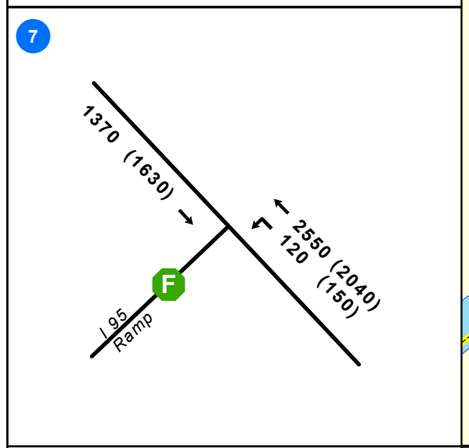
AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

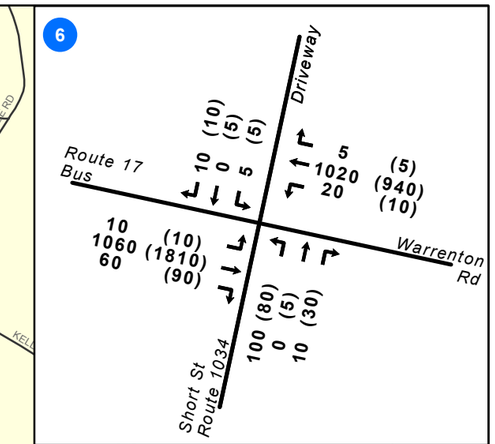
Baker





	Mainline	CD Road	Total
AM	2600	840	3440
PM	4610	2890	7500
Daily	63200	29300	92500

	Mainline	CD Road	Total
AM	3500	3470	6970
PM	3090	1750	4840
Daily	57800	35900	93700



RAMP PEAK HOUR VOLUMES

AM (PM) [DAILY]

	AM	(PM)	[DAILY]
A	130	(200)	[3200]
B	720	(400)	[7800]
C	1950	(1490)	[23700]
D	410	(330)	[6100]
E	490	(550)	[8700]
F	See Intersection 7		
G	350	(480)	[6400]
H	1070	(2040)	[27100]

I-95 Interchange Modification Report

Figure 6-8B: 2020 Build Conditions Peak Hour Traffic Volumes

Legend

- # Analyzed Intersection
- Traffic Analysis Design
- Structures
- Corporate Boundary
- Roadways
- Streams
- Water
- Wetlands

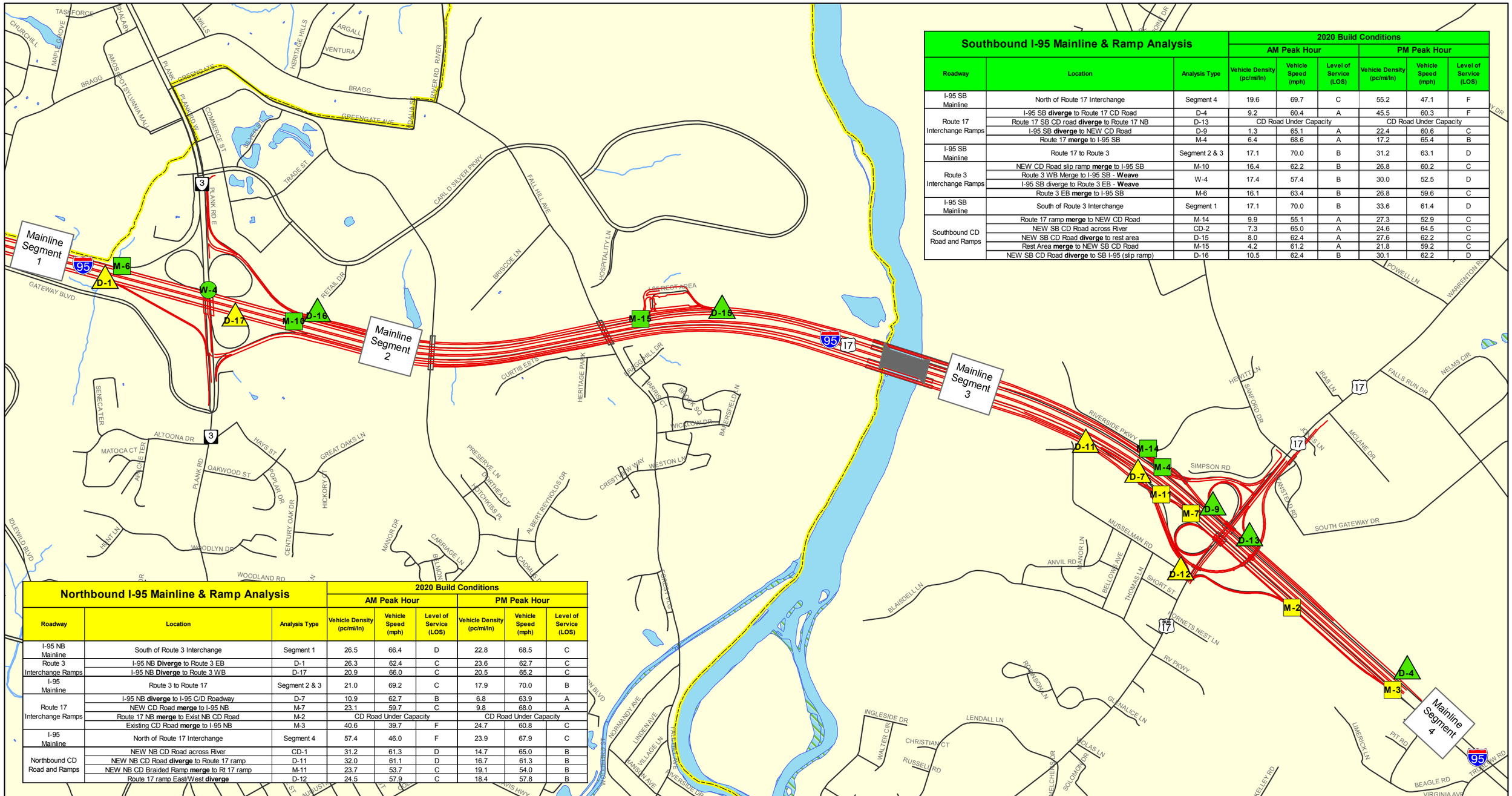
2020 Build

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker



Southbound I-95 Mainline & Ramp Analysis			2020 Build Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis Type	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 SB Mainline	North of Route 17 Interchange	Segment 4	19.6	69.7	C	55.2	47.1	F
Route 17 Interchange Ramps	I-95 SB **diverge** to Route 17 CD Road	D-4	9.2	60.4	A	45.5	60.3	F
	Route 17 SB CD road **diverge** to Route 17 NB	D-13	CD Road Under Capacity			CD Road Under Capacity		
	I-95 SB **diverge** to NEW CD Road	D-9	1.3	65.1	A	22.4	60.6	C
	Route 17 **merge** to I-95 SB	M-4	6.4	68.6	A	17.2	65.4	B
I-95 SB Mainline	Route 17 to Route 3	Segment 2 & 3	17.1	70.0	B	31.2	63.1	D
Route 3 Interchange Ramps	NEW CD Road slip ramp **merge** to I-95 SB	M-10	16.4	62.2	B	26.8	60.2	C
	Route 3 WB Merge to I-95 SB - **Weave**	W-4	17.4	57.4	B	30.0	52.5	D
	I-95 SB diverge to Route 3 EB - **Weave**							
	Route 3 EB **merge** to I-95 SB	M-6	16.1	63.4	B	26.8	59.6	C
I-95 SB Mainline	South of Route 3 Interchange	Segment 1	17.1	70.0	B	33.6	61.4	D
Southbound CD Road and Ramps	Route 17 ramp **merge** to NEW CD Road	M-14	9.9	55.1	A	27.3	52.9	C
	NEW SB CD Road across River	CD-2	7.3	65.0	A	24.6	64.5	C
	NEW SB CD Road **diverge** to rest area	D-15	8.0	62.4	A	27.6	62.2	C
	Rest Area **merge** to NEW SB CD Road	M-15	4.2	61.2	A	21.8	59.2	C
	NEW SB CD Road **diverge** to SB I-95 (slip ramp)	D-16	10.5	62.4	B	30.1	62.2	D

Northbound I-95 Mainline & Ramp Analysis			2020 Build Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis Type	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 NB Mainline	South of Route 3 Interchange	Segment 1	26.5	66.4	D	22.8	68.5	C
Route 3 Interchange Ramps	I-95 NB **Diverge** to Route 3 EB	D-1	26.3	62.4	C	23.6	62.7	C
	I-95 NB **Diverge** to Route 3 WB	D-17	20.9	66.0	C	20.5	65.2	C
I-95 Mainline	Route 3 to Route 17	Segment 2 & 3	21.0	69.2	C	17.9	70.0	B
Route 17 Interchange Ramps	I-95 NB **diverge** to I-95 C/D Roadway	D-7	10.9	62.7	B	6.8	63.9	A
	NEW CD Road **merge** to I-95 NB	M-7	23.1	59.7	C	9.8	68.0	A
	Route 17 NB **merge** to Exist NB CD Road	M-2	CD Road Under Capacity			CD Road Under Capacity		
	Existing CD Road **merge** to I-95 NB	M-3	40.6	39.7	F	24.7	60.8	C
I-95 Mainline	North of Route 17 Interchange	Segment 4	57.4	46.0	F	23.9	67.9	C
Northbound CD Road and Ramps	NEW NB CD Road across River	CD-1	31.2	61.3	D	14.7	65.0	B
	NEW NB CD Road **diverge** to Route 17 ramp	D-11	32.0	61.1	D	16.7	61.3	B
	NEW NB CD Braided Ramp **merge** to Rt 17 ramp	M-11	23.7	53.7	C	19.1	54.0	B
	Route 17 ramp East/West **diverge**	D-12	24.5	57.9	C	18.4	57.8	B

I-95 Interchange Modification Report

Figure 6-9: 2020 Build Traffic Operations

Legend

- Traffic Analysis Design
- Structures
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

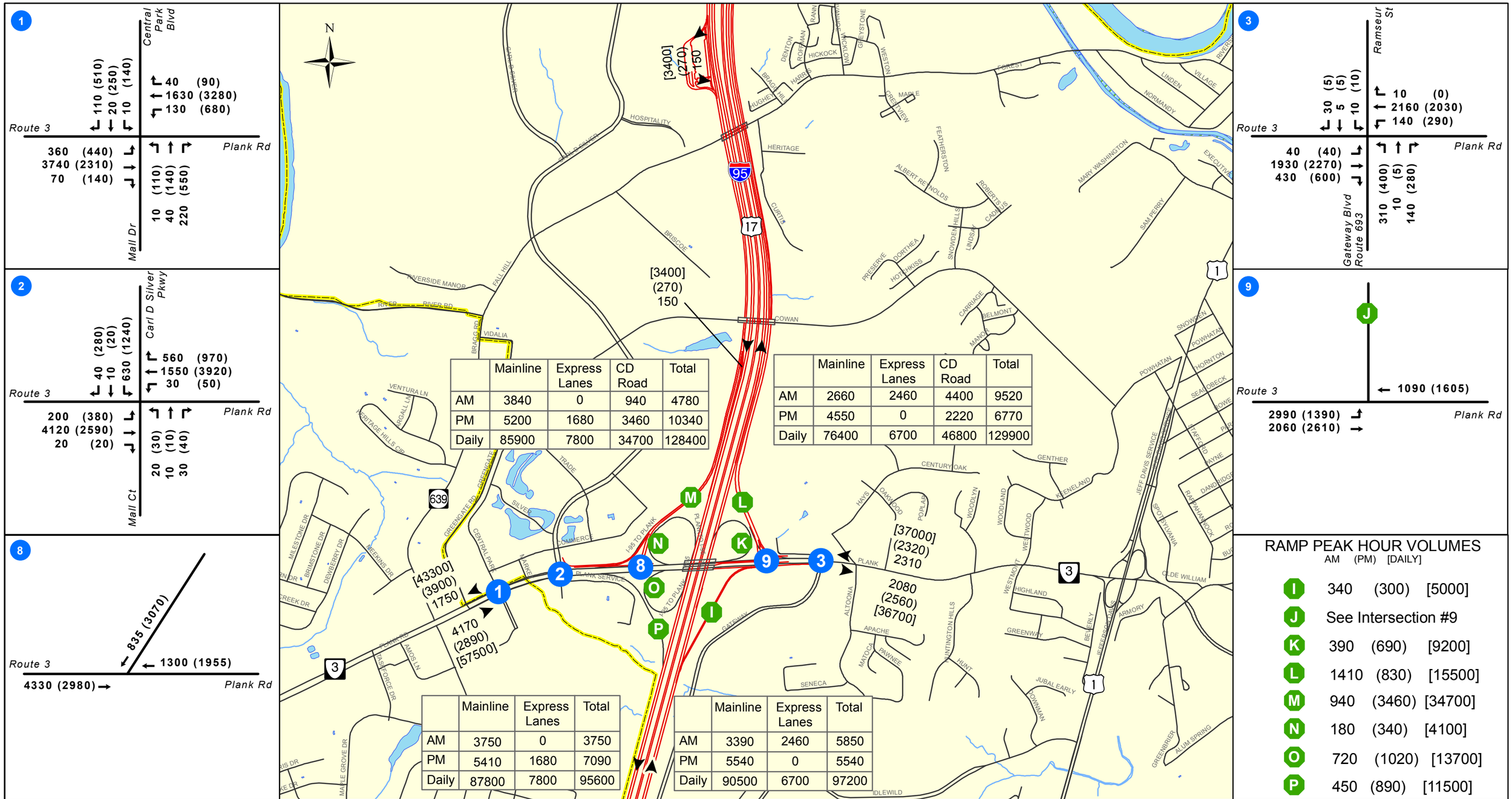
2020 Build Traffic Operations

NB	SB	
D-3	D-3	Diverge Junction
M-3	M-3	Merge Junction
W-3	W-3	Weave Junction

N

1,600 800 0 1,600 Feet

Baker



	Mainline	Express Lanes	CD Road	Total
AM	3840	0	940	4780
PM	5200	1680	3460	10340
Daily	85900	7800	34700	128400

	Mainline	Express Lanes	CD Road	Total
AM	2660	2460	4400	9520
PM	4550	0	2220	6770
Daily	76400	6700	46800	129900

	Mainline	Express Lanes	Total
AM	3750	0	3750
PM	5410	1680	7090
Daily	87800	7800	95600

	Mainline	Express Lanes	Total
AM	3390	2460	5850
PM	5540	0	5540
Daily	90500	6700	97200

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
I	340	(300)	[5000]
J	See Intersection #9		
K	390	(690)	[9200]
L	1410	(830)	[15500]
M	940	(3460)	[34700]
N	180	(340)	[4100]
O	720	(1020)	[13700]
P	450	(890)	[11500]

I-95 Interchange Modification Report

Figure 6-10A: 2040 Build Conditions Peak Hour Traffic Volumes

Legend

- Analyzed Intersection
- Traffic Analysis Design
- Structures
- Corporate Boundary
- Roadways
- Streams
- Water
- Wetlands

2040 Build

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker

	Mainline	Express Lanes	Total
AM	4250	0	4250
PM	6950	1680	8630
Daily	99700	7800	107500

	Mainline	Express Lanes	Total
AM	5670	2460	8130
PM	5380	0	5380
Daily	104100	6700	110800

	Mainline	Express Lanes	CD Road	Total
AM	3690	0	1090	4780
PM	4930	1680	3730	10340
Daily	82600	7800	38000	128400

	Mainline	Express Lanes	CD Road	Total
AM	2660	2460	4400	9520
PM	4550	0	2220	6770
Daily	76400	6700	46800	129900

RAMP PEAK HOUR VOLUMES

AM (PM) [DAILY]

A	170	(250)	[4100]
B	1020	(570)	[11100]
C	2770	(2130)	[33700]
D	530	(420)	[7700]
E	700	(790)	[12500]
F	See Intersection #7		
G	440	(600)	[8100]
H	1520	(2900)	[38600]

I-95 Interchange Modification Report

Figure 6-10B: 2040 Build Conditions Peak Hour Traffic Volumes

Legend

2040 Build

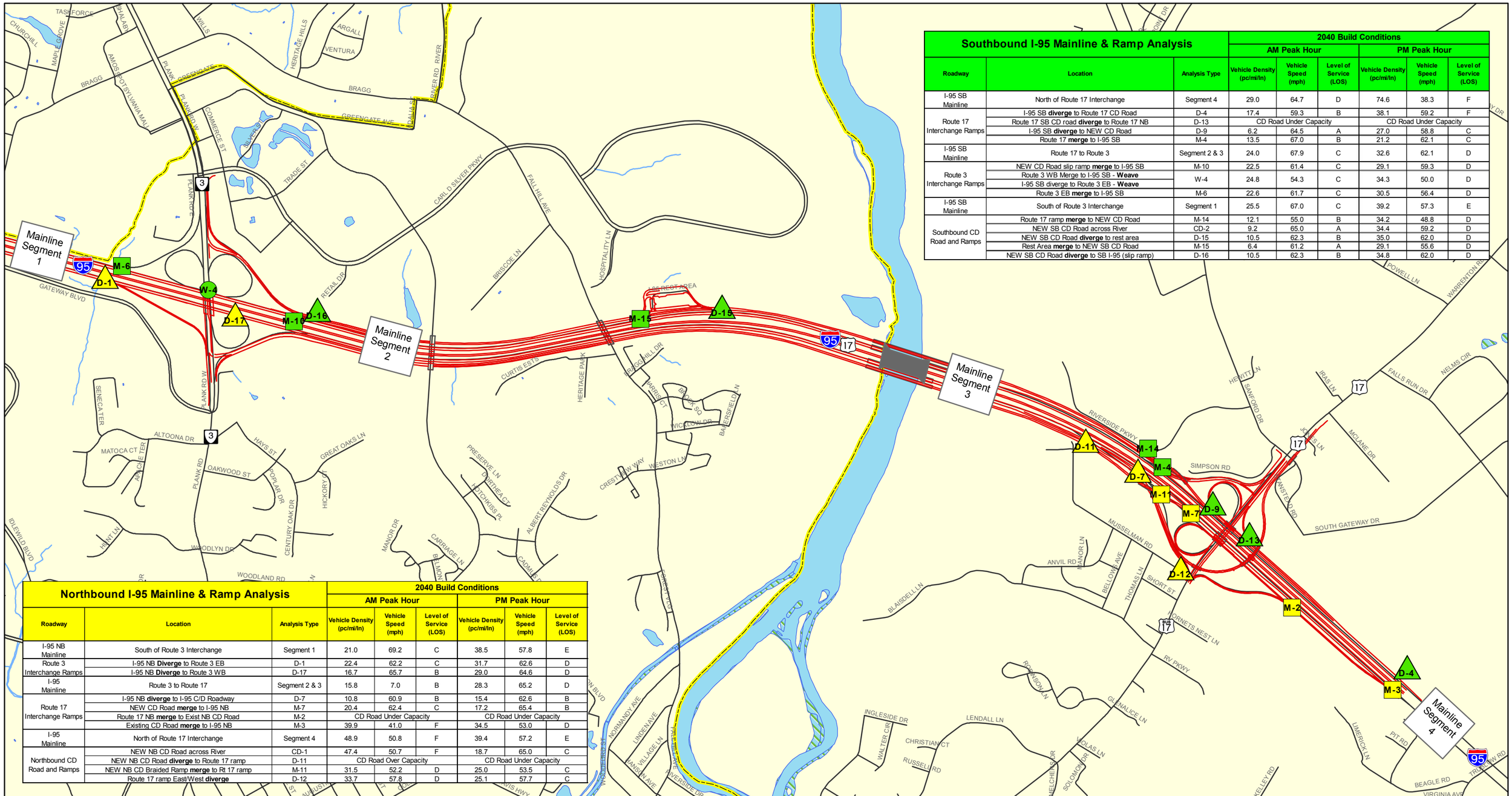
AM Volume (PM Volume) [Daily Volume]

- # Analyzed Intersection
- Traffic Analysis Design
- Structures
- Corporate Boundary
- Roadways
- Streams
- Water
- Wetlands

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker



Southbound I-95 Mainline & Ramp Analysis			2040 Build Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis Type	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 SB Mainline	North of Route 17 Interchange	Segment 4	29.0	64.7	D	74.6	38.3	F
Route 17 Interchange Ramps	I-95 SB **diverge** to Route 17 CD Road	D-4	17.4	59.3	B	38.1	59.2	F
	Route 17 SB CD road **diverge** to Route 17 NB	D-13	CD Road Under Capacity			CD Road Under Capacity		
	I-95 SB **diverge** to NEW CD Road	D-9	6.2	64.5	A	27.0	58.8	C
	Route 17 **merge** to I-95 SB	M-4	13.5	67.0	B	21.2	62.1	C
I-95 SB Mainline	Route 17 to Route 3	Segment 2 & 3	24.0	67.9	C	32.6	62.1	D
Route 3 Interchange Ramps	NEW CD Road slip ramp **merge** to I-95 SB	M-10	22.5	61.4	C	29.1	59.3	D
	Route 3 WB Merge to I-95 SB - **Weave**	W-4	24.8	54.3	C	34.3	50.0	D
	I-95 SB diverge to Route 3 EB - **Weave**							
	Route 3 EB **merge** to I-95 SB	M-6	22.6	61.7	C	30.5	56.4	D
I-95 SB Mainline	South of Route 3 Interchange	Segment 1	25.5	67.0	C	39.2	57.3	E
Southbound CD Road and Ramps	Route 17 ramp **merge** to NEW CD Road	M-14	12.1	55.0	B	34.2	48.8	D
	NEW SB CD Road across River	CD-2	9.2	65.0	A	34.4	59.2	D
	NEW SB CD Road **diverge** to rest area	D-15	10.5	62.3	B	35.0	62.0	D
	Rest Area **merge** to NEW SB CD Road	M-15	6.4	61.2	A	29.1	55.6	D
	NEW SB CD Road **diverge** to SB I-95 (slip ramp)	D-16	10.5	62.3	B	34.8	62.0	D

Northbound I-95 Mainline & Ramp Analysis			2040 Build Conditions					
			AM Peak Hour			PM Peak Hour		
Roadway	Location	Analysis Type	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)	Vehicle Density (pc/mi/ln)	Vehicle Speed (mph)	Level of Service (LOS)
I-95 NB Mainline	South of Route 3 Interchange	Segment 1	21.0	69.2	C	38.5	57.8	E
Route 3 Interchange Ramps	I-95 NB **Diverge** to Route 3 EB	D-1	22.4	62.2	C	31.7	62.6	D
	I-95 NB **Diverge** to Route 3 WB	D-17	16.7	65.7	B	29.0	64.6	D
I-95 Mainline	Route 3 to Route 17	Segment 2 & 3	15.8	7.0	B	28.3	65.2	D
Route 17 Interchange Ramps	I-95 NB **diverge** to I-95 C/D Roadway	D-7	10.8	60.9	B	15.4	62.6	B
	NEW CD Road **merge** to I-95 NB	M-7	20.4	62.4	C	17.2	65.4	B
	Route 17 NB **merge** to Exist NB CD Road	M-2	CD Road Under Capacity			CD Road Under Capacity		
	Existing CD Road **merge** to I-95 NB	M-3	39.9	41.0	F	34.5	53.0	D
I-95 Mainline	North of Route 17 Interchange	Segment 4	48.9	50.8	F	39.4	57.2	E
Northbound CD Road and Ramps	NEW NB CD Road across River	CD-1	47.4	50.7	F	18.7	65.0	C
	NEW NB CD Road **diverge** to Route 17 ramp	D-11	CD Road Over Capacity			CD Road Under Capacity		
	NEW NB CD Braided Ramp **merge** to Rt 17 ramp	M-11	31.5	52.2	D	25.0	53.5	C
	Route 17 ramp East/West **diverge**	D-12	33.7	57.8	D	25.1	57.7	C

I-95 Interchange Modification Report

Figure 6-11: 2040 Build Traffic Operations

Legend

- Traffic Analysis Design
- Structures
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

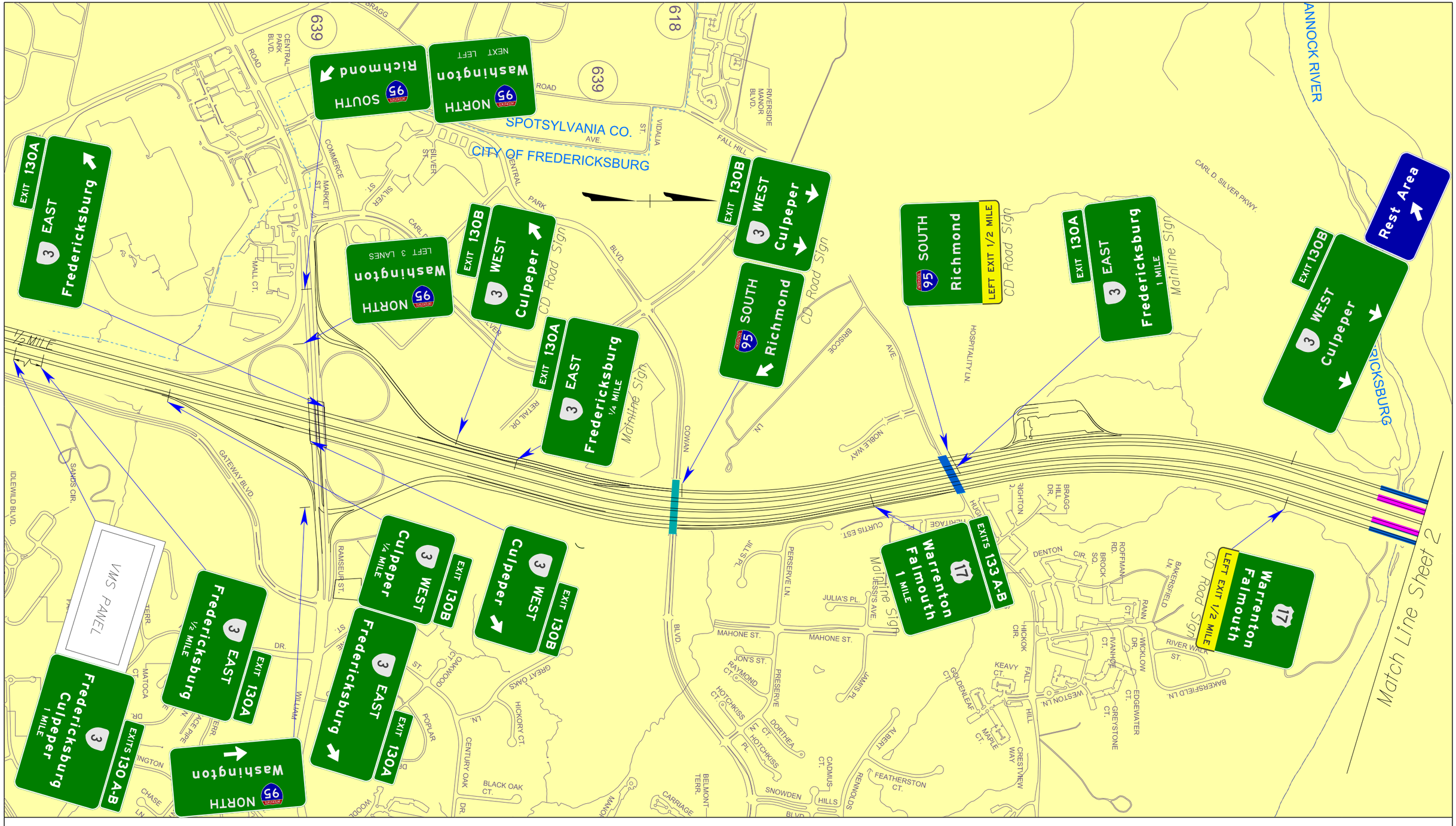
2040 Build Traffic Operations

NB	SB	
D-3	D-3	Diverge Junction
M-3	M-3	Merge Junction
W-3	W-3	Weave Junction

N

1,600 800 0 1,600 Feet

Baker

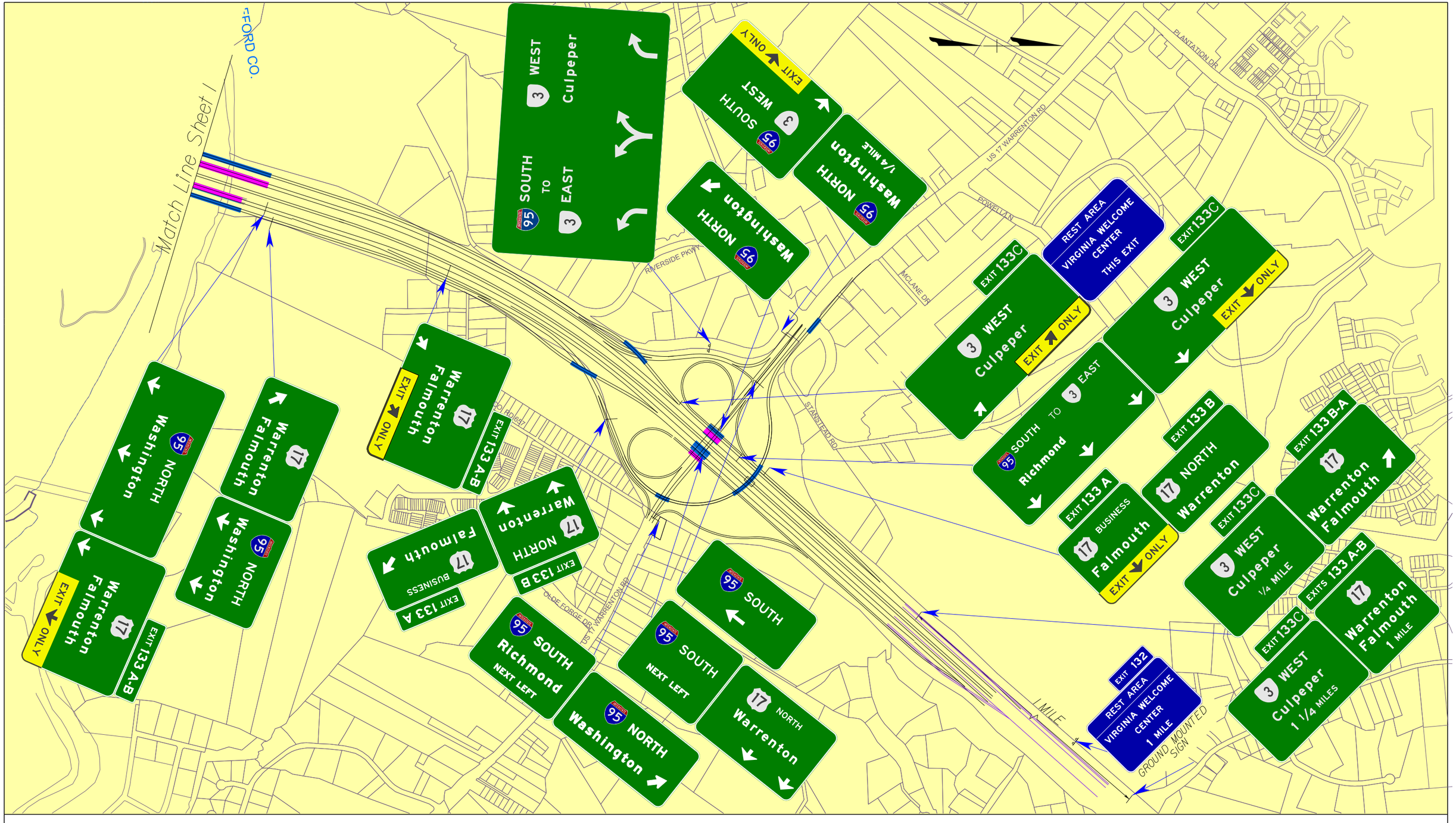


Baker

I-95 Interchange Modification Report
CONCEPTUAL SIGNING PLAN

Figure 6-12
(SHEET 1 OF 2)

SCALE
0 300' 600' 900'



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I-95 Interchange Modification Report

CONCEPTUAL SIGNING PLAN

Figure 6-12
(SHEET 2 OF 2)