

Appendix C—Alternatives Development and Screening Report

Part 3

Appendix C—Representative Alternatives (RA1-RA9) and Recommended Preferred Alternative (Sheets 1-11)

(continued)

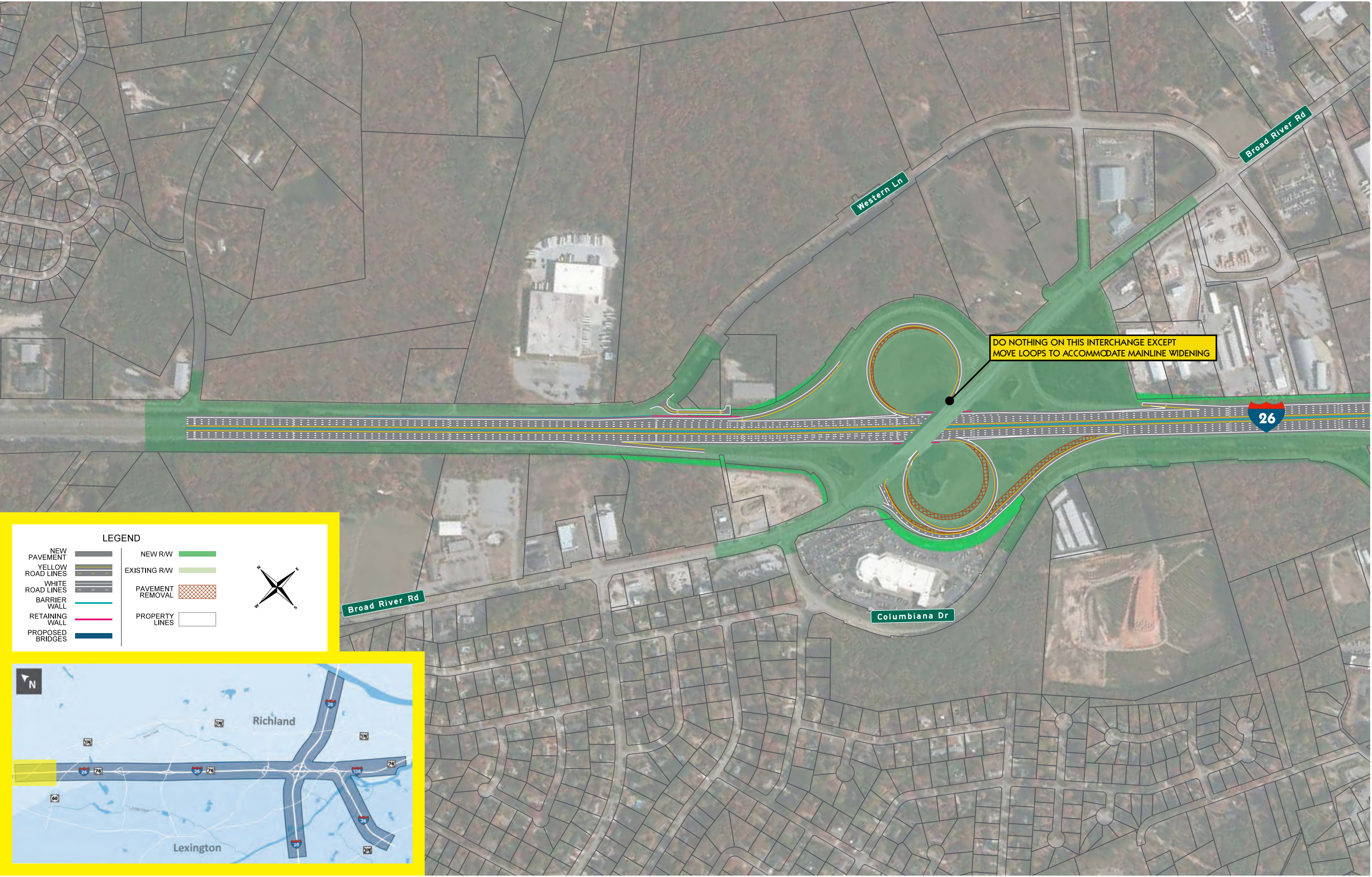
REPRESENTATIVE ALTERNATIVE 9

LEGEND

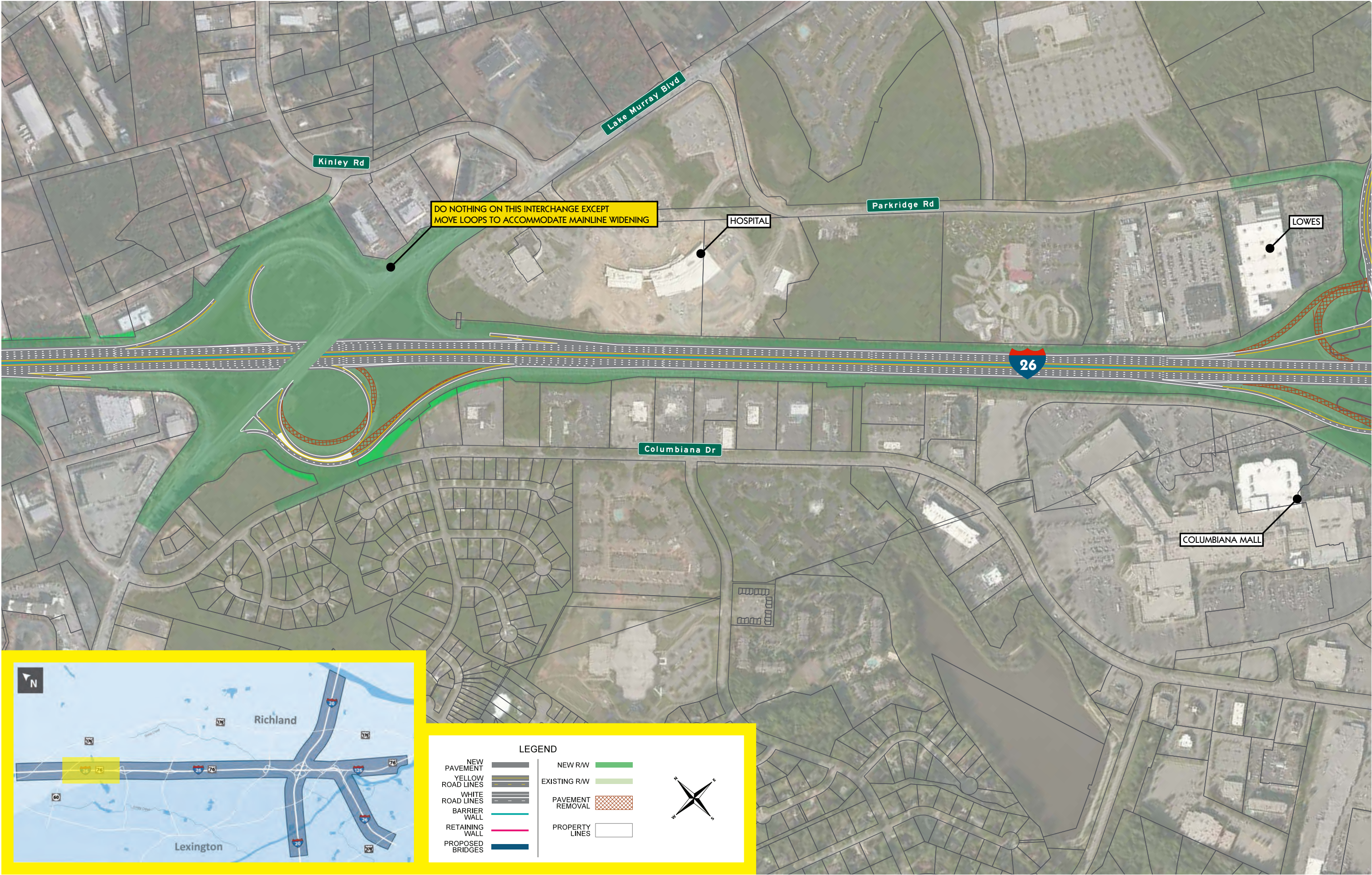
- Main Interstate
- Connector
- On-ramp
- Off-ramp
- New Roadway
- Interchange Alternative
- Travel Direction



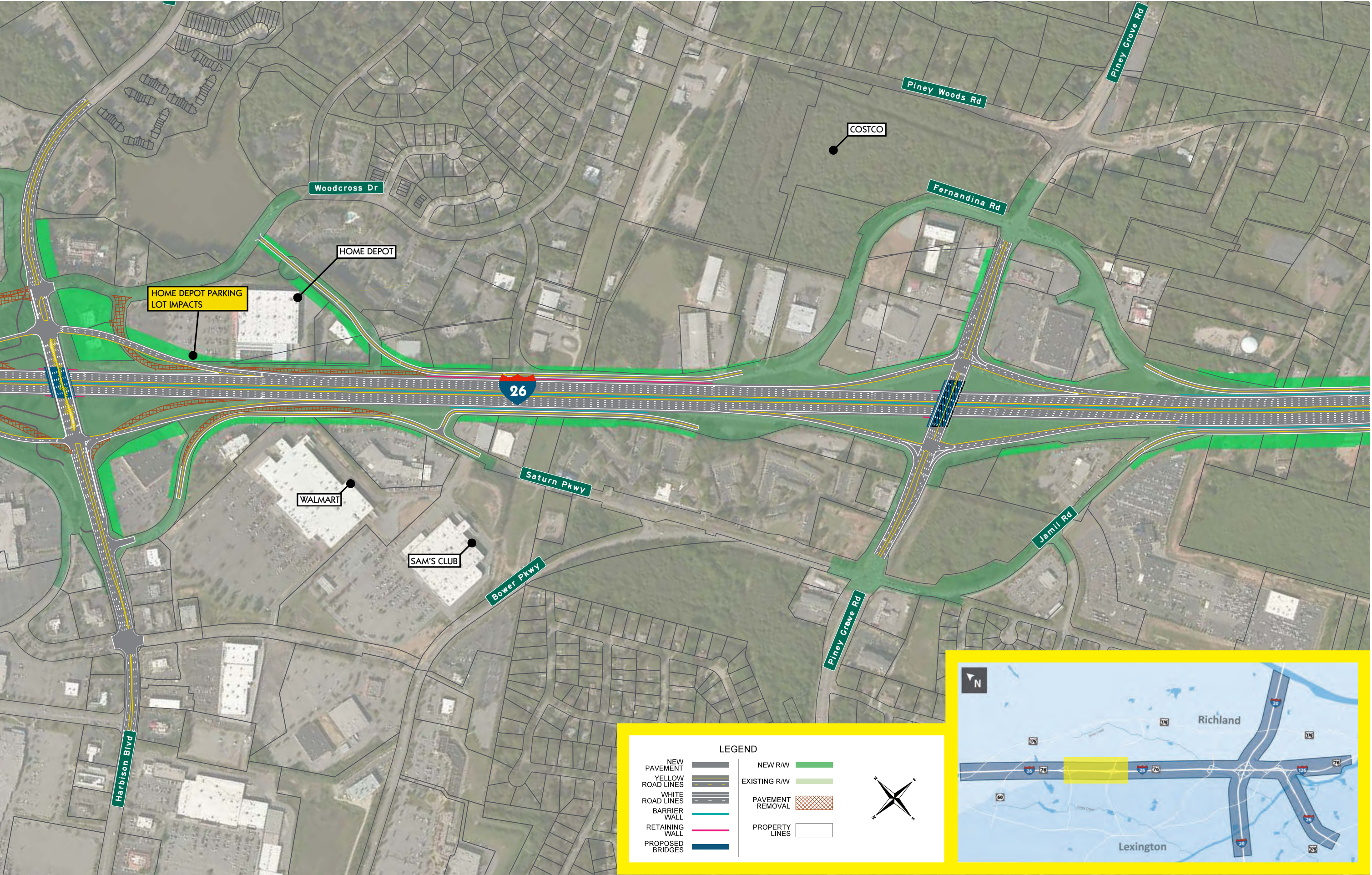
RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



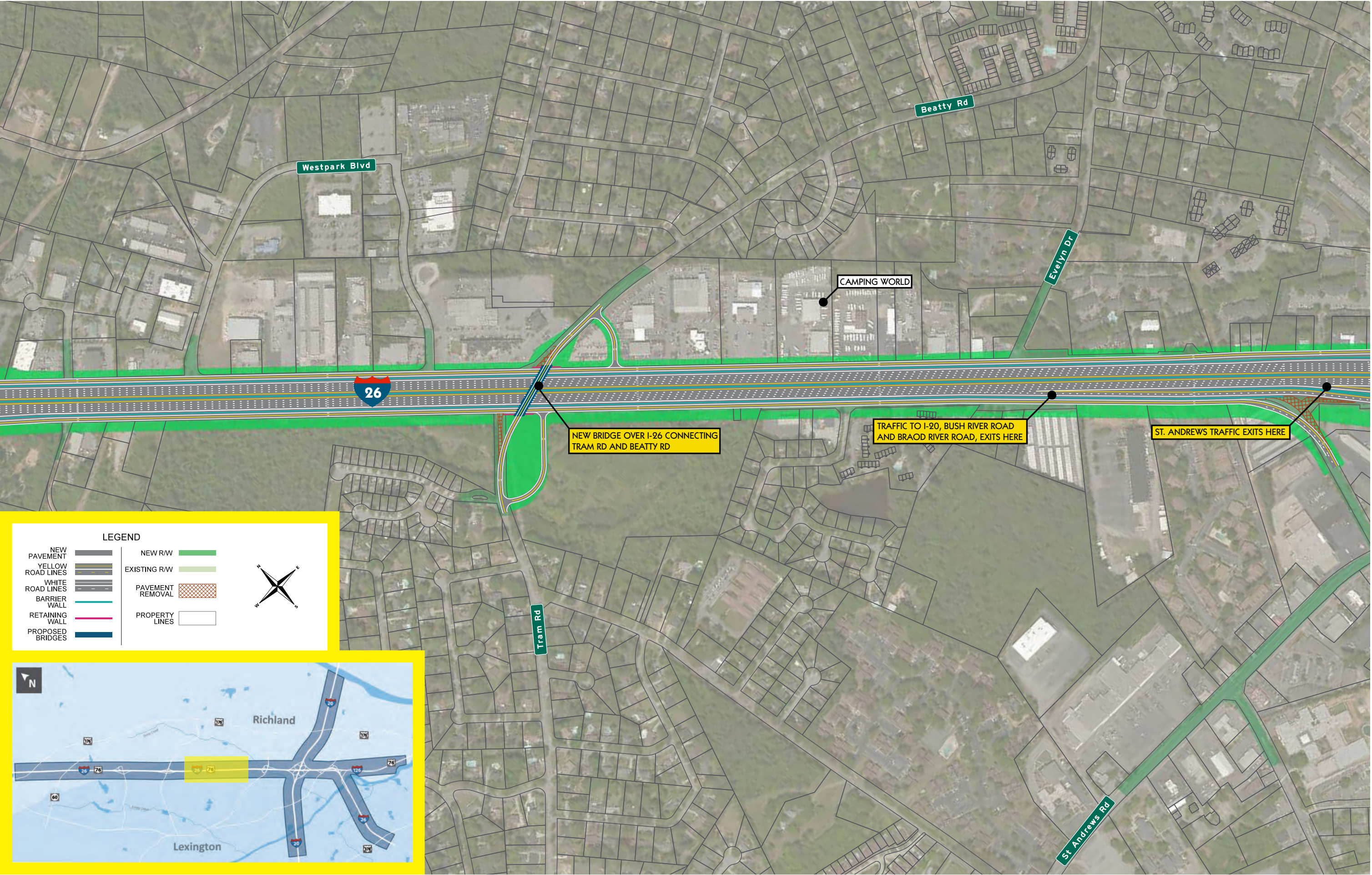
RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



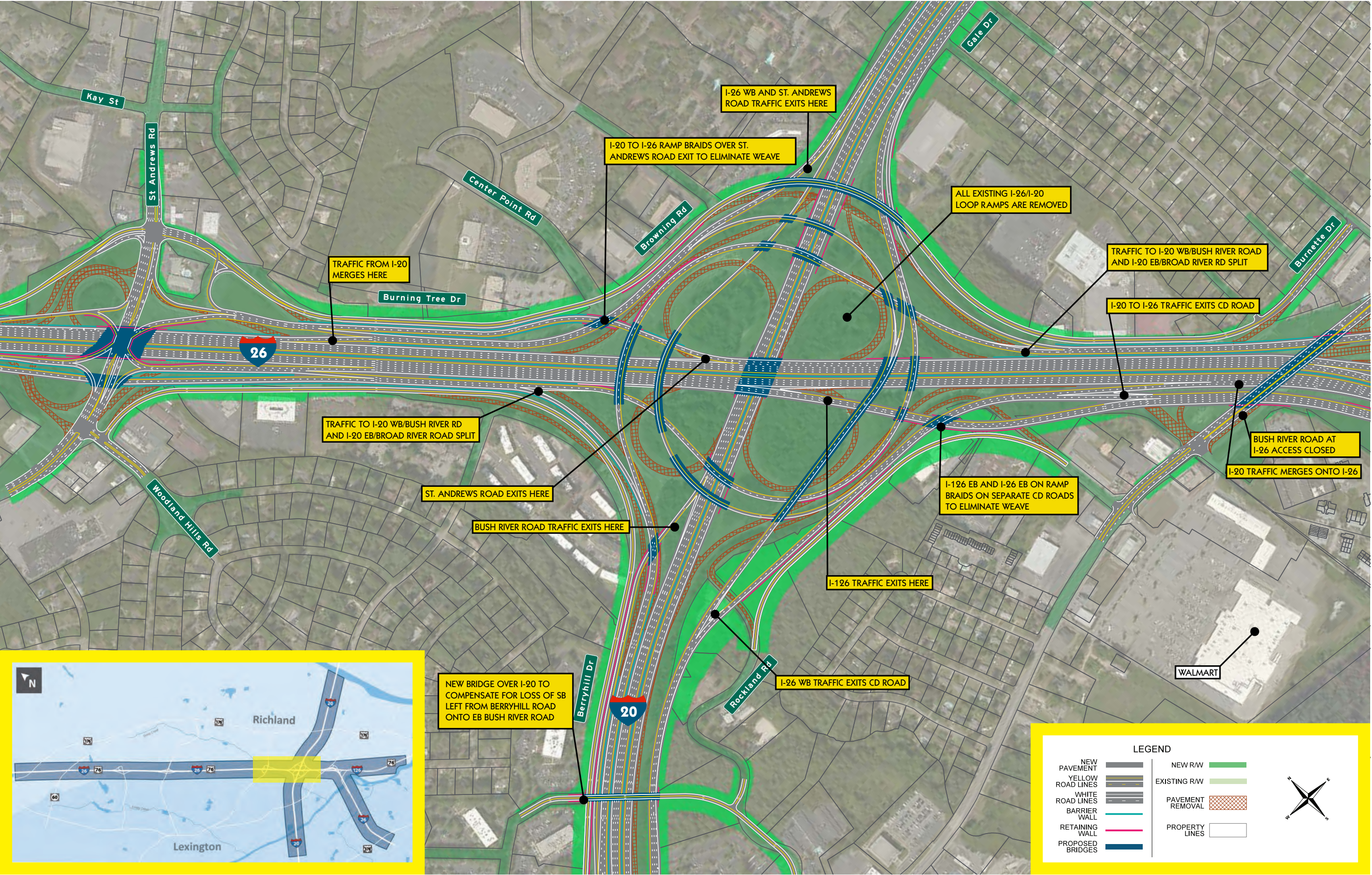
RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



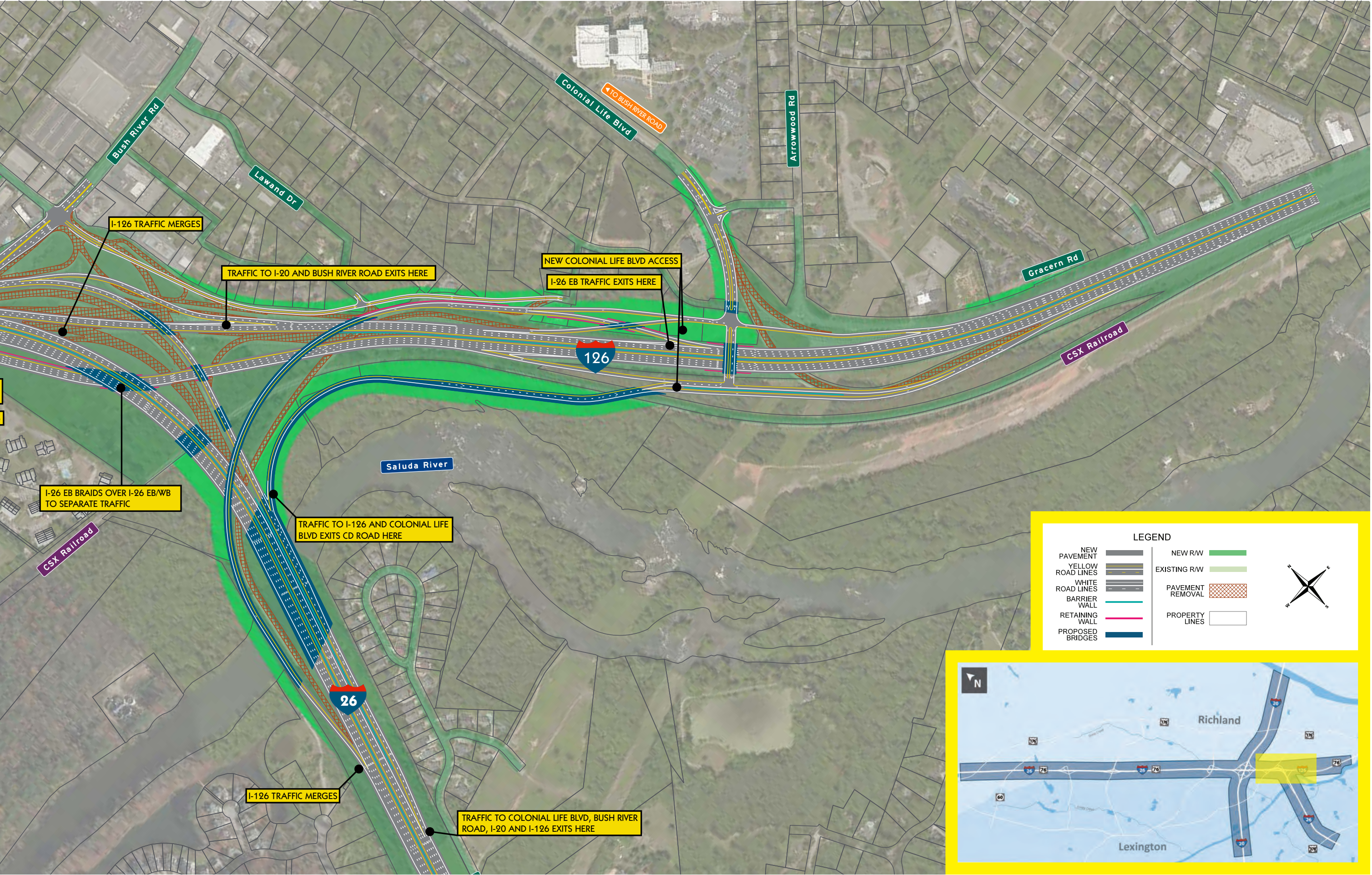
RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



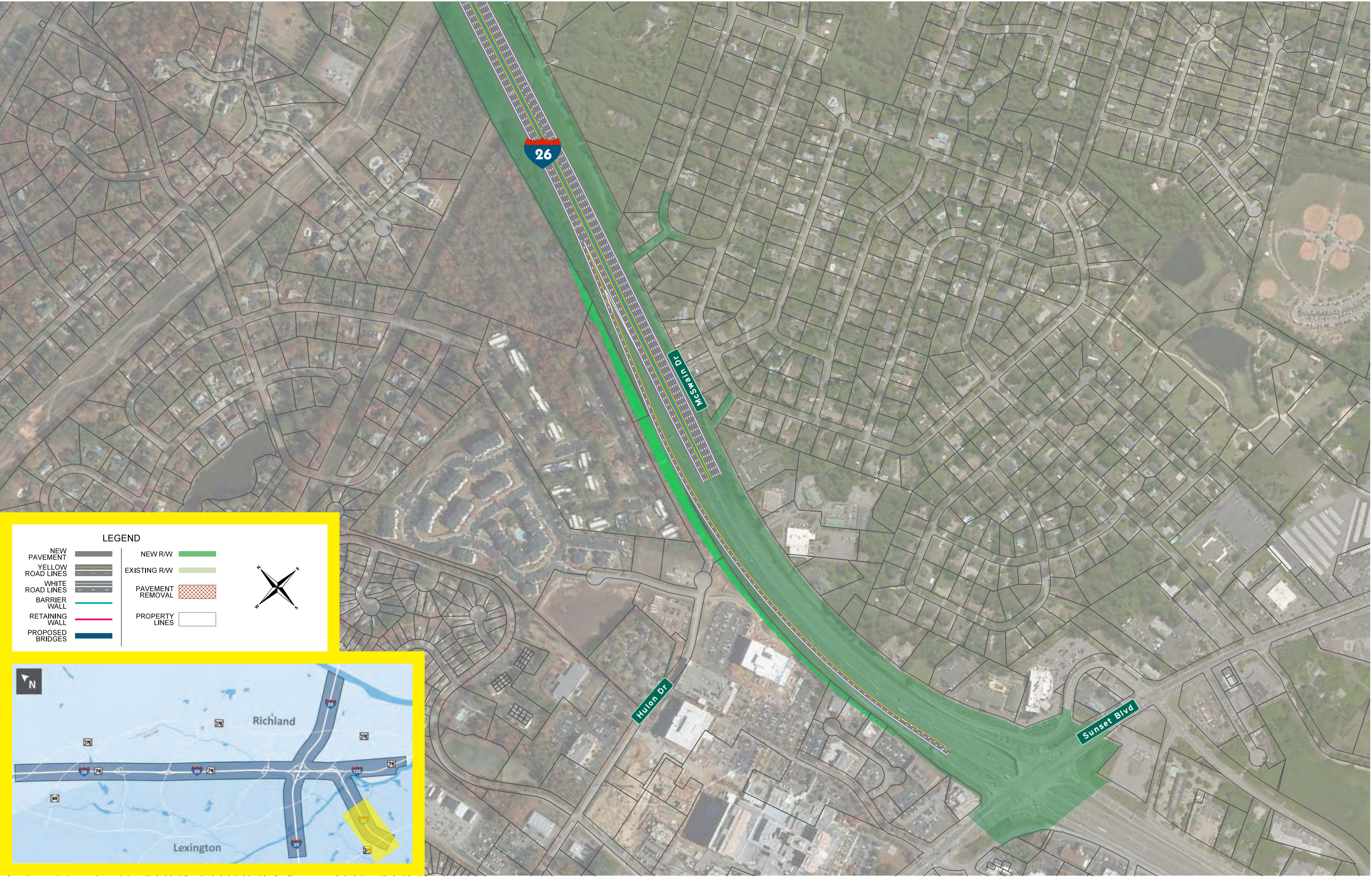
RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



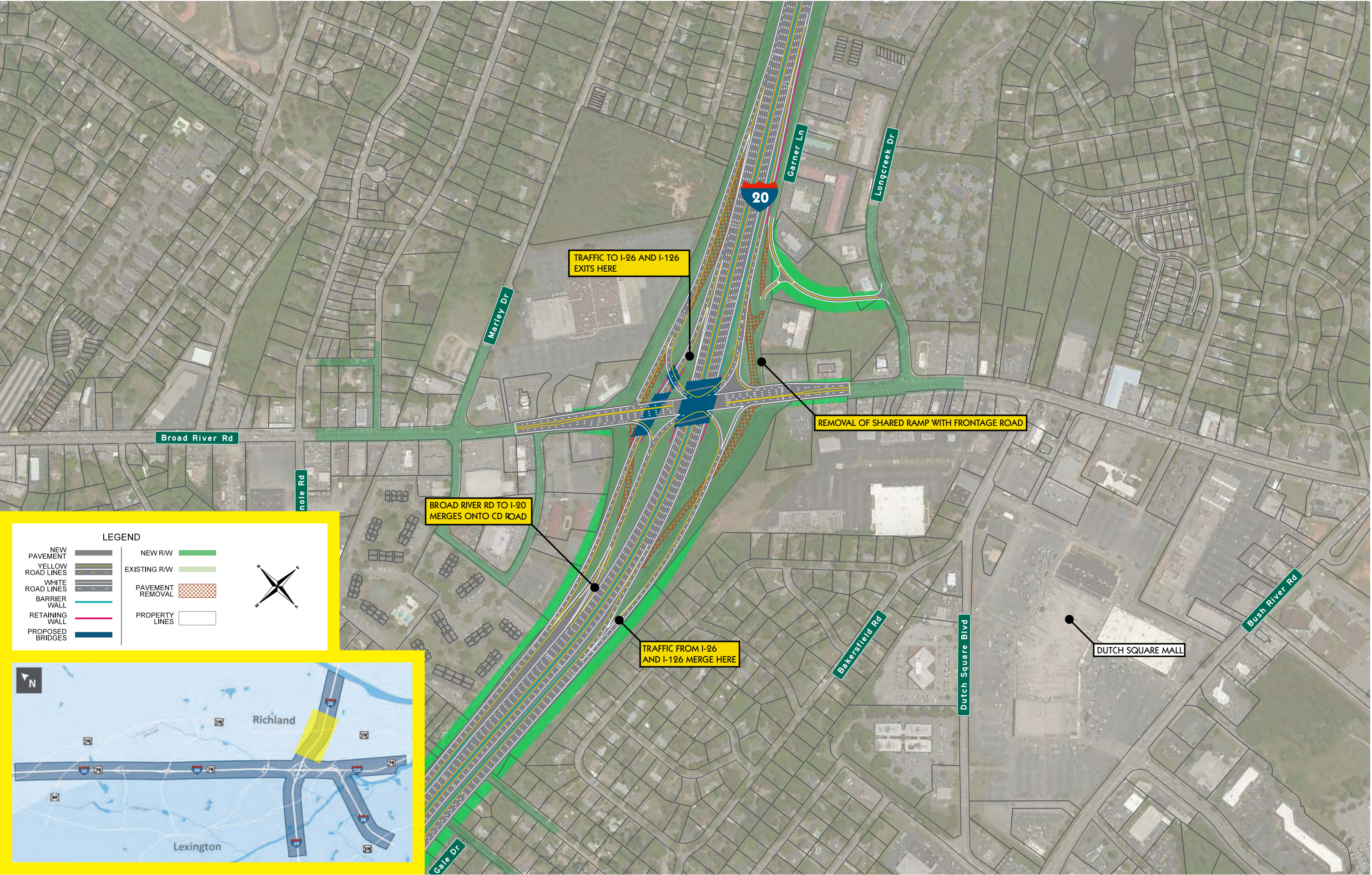
RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



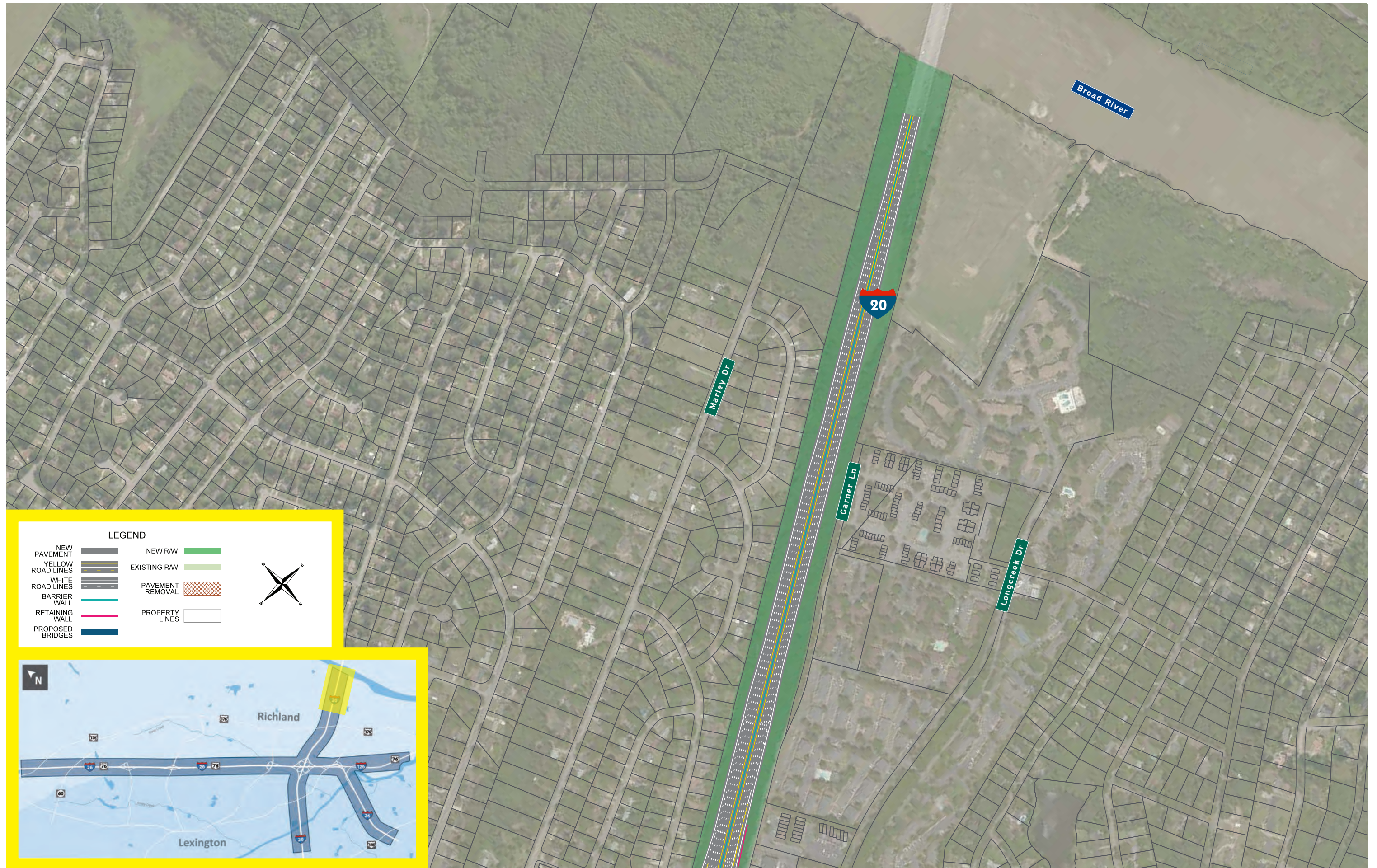
RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



RECOMMENDED PREFERRED ALTERNATIVE - SHEETS 1-11



Appendix D—Level 2 Screening Matrix of Alternatives

Level 2 Screening Criteria	RA1	RA2	RA3	RA4	RA5	RA6	RA7	RA8	RA9	RA10
Property Impacts										
Full Acquisitions (parcels)	41	65			34		61	44		
Partial Acquisitions (parcels)	240	275			257		251	237		
Wetland										
High Quality (acres)	0.76	1.13			0.76		4.01	3.78		
Medium Quality (acres)	1.78	0.12			1.78		7.28	4.73		
Low Quality (acres)	1.43	1.29			1.21		1.38	1.19		
Stream Impact										
Crossings	36	41			31		36	37		
High Quality (linear feet)	1,376	1,560			1,321		2,268	3,471		
Medium Quality (linear feet)	5,793	6,739			5,401		5,205	5,857		
Low Quality (linear feet)	8,215	8,425			8,460		7,974	8,788		
Floodplain Crossings										
Floodplain Zone AE - Floodway (acres)	26.46	24.89			26.22	24.94	84.5	56.72		
Floodplain Zone AE (acres)	41.25	35.35			41.95	35.46	40.86	64.55		
Noise Impacts (parcels)	66	104			73	128	98	83		
Costs (Millions) - 70th Percentile Post Response, year of expenditure	\$1,460.5	\$1,460.9			\$1,535.0	\$1,676.6	\$1,947.5	\$1,968.9		
4(f) Impacts (acres)	2.84	0.14			2.84	0.49	3.13	2.73		
Historic Properties	0				0		0	0		
Low-Income/Minority Census Blocks	25	24			24	24	23	24		
Hazardous sites	9	9			10	8	10	11		
Constructibility	2				1	1	1	1		
Meets Local/Regional Land Use Plans	Yes	Yes			Yes	Yes	No	No		
Level 1B Impact										
LOS Improvement (Percent)	17.8				11.4		18	12.5		
Travel Time Points	22				20		5.5	18.5		
Average Through Speed Points	61				22		24	27		
Geometric Deficiencies	0				0		1	2		

Legend	Low Impact	Medium Impact	High Impact
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Source: Level 2 Screening Matrix Appendix D

Level 2 Screening Measures (Note: Estimated impacts/costs of alts advanced to DEIS will change based on add'l engineering and ground-truthing.)			Units	Source	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7	Alt 8
					RA 1, Turbine	RA 2, Directional w/ Interior Rights	RA 3, Turbine Braided	RA 4, semi-Directional w/ 2 loops	RA 5, Turbine Directional	RA 6 Directional w/ Loop and Ramp	RA 7, E-W Connector	RA 8 E-W Connector Bush River
Total No. of Res. Or Bus. Acquisitions												
	Residential	Full Parcels	County Parcel Data (Land Use)	15					10		32	20
	Residential	Partial Parcels	County Parcel Data (Land Use)	47					60		70	62
	Business	Full Parcels	County Parcel Data (Land Use)	22					22		24	20
	Business	Partial Parcels	County Parcel Data (Land Use)	181					183		172	167
	Institutional	Full Parcels	County Parcel Data (Land Use)	4					2		5	4
	Institutional	Partial Parcels	County Parcel Data (Land Use)	12					14		9	8
Noise Sensitive Receptors												
Residential and Institutional		Parcels	County Parcel Data (Land Use)	66					73		98	83
Community Resources												
Section 4(f)												
	Linear Feet	Acres	Based on Master Bike/Ped Plan City of Columbia Assuming 20ft Easement	6,177					6,177		6,823	5,946
				2.84					2.84		3.13	2.73
Low-Income/Minority Populations		No. of Census Blocks	US Census Bureau	25					24		23	24
Historic Resources		NRHP Sites	Number, Sites	0					0		0	0
		NRHP Sites	Number, Districts	0					0		0	0
Archaeological Resources		NRHP sites	Number, Full	0					0		0	0
		NRHP sites	Number, Partial	0					0		0	0
Natural Resources												
Wetlands		Acres	USFWS/NWI	3.97					3.75		12.67	9.70
	Low Quality	Medium Quality	High Quality	1.43					1.21		1.38	1.19
				1.78				1.78		7.28	4.73	
				0.76				0.76		4.01	3.78	
Streams/Rivers		Linear Feet	NHD flow-lines	15,376					15,182		15,447.00	18,116.00
	Number of Crossings	Low Quality	Medium Quality	36					31		36	37
				8,215				8,460		7,974	8,788	
				5,793				5,401		5,205	5,857	
				1,376				1,321		2,268	3,471	
Floodplains		Zone AE	Acres	FEMA	41.25				41.95		40.86	64.55
		Zone AE-Floodway	Acres	FEMA	26.46				26.22		84.50	56.72
Farmlands		Acres Prime Farmland	USDA	280.05					277.39		277.57	305.56
		Acres of Statewide Importance		298.64					299.01		332.13	339.50
Protected Species												
Bald Eagle	No. of Recorded Occurrences	SCDNR/USFWS Database	0						0		0	0
Red-cockaded Woodpecker	No. of Recorded Occurrences	SCDNR/USFWS Database	0						0		0	0
Smooth Coneflower	No. of Recorded Occurrences	SCDNR/USFWS Database	0						0		0	0
Atlantic Sturgeon (Richland only)	No. of Recorded Occurrences	SCDNR/USFWS Database	0						0		0	0
Shortnose Sturgeon (Richland only)	No. of Recorded Occurrences	SCDNR/USFWS Database	0						0		0	0
Canby's dropwort (Richland only)	No. of Recorded Occurrences	SCDNR/USFWS Database	0						0		0	0
Michaux's sumac (Richland only)	No. of Recorded Occurrences	SCDNR/USFWS Database	0						0		0	0
Rough-leaved loosestrife (Richland only)	No. of Recorded Occurrences	SCDNR/USFWS Database	0						0		0	0
Hazardous Materials												
High Risk Sites: USIS, LUSTs, dry cleaners, active land fills		No of recorded sites	SCDHEC database	9					10		10	11

Purpose & Need											
Extent to which primary P&N is met (reduce traffic congestion, accommodate future traffic)	Percentage	Based on MOE	17.8					11.4		18	12.5
Extent to which <u>secondary</u> P&N is met (enhance safety, improve freight mobility, improve system linkages)	Qualitative	1 = Does not meet 2 = Moderately meets 3 = Substantially meets	3					2		3	2
Access to Transit Facilities											
Existing transit stops within 1/4-mile?	No. of stops	COMET System Map									
Other											
Consistency with Local/Regional Land Use Plans	Yes/No	Land Use Plans	Y					Y		N	N
Constructability	Qualitative	1 = Major issues/impacts 2 = Moderate issues/impacts 3 = Minor issues/impacts	2					1		1	1
Costs CRA Based	Cost, Millions of Dollars	70th Percentile	1460.5					1535		1947.5	1968.9
Costs	Quantitative	Conceptual alignment/Order of Magnitude (H, M, L)	Low					Medium		High	High
Carry Forward as Reasonable Alternative? Y/N			Y					Y		N	N