ARTERIAL

PRESERVATION PROGRAM

Route 3 Arterial Preservation Plan – Final Recommendations

September 5, 2018; 6:00 PM – 8:00 PM

Locust Grove Middle School

VDOT

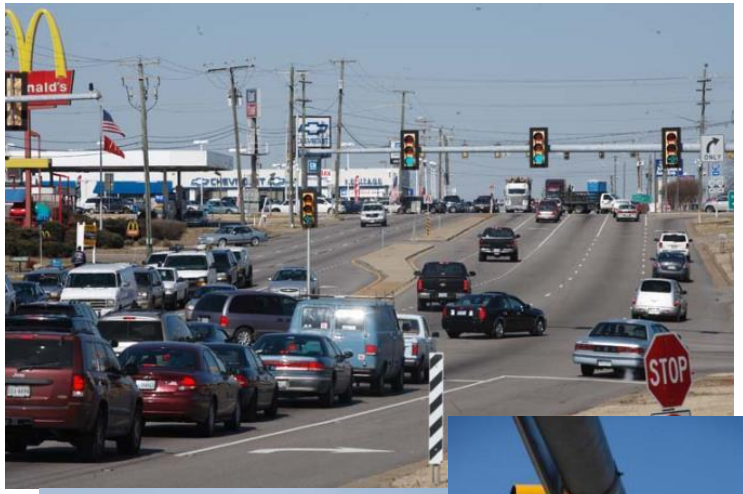
Virginia Department of Transportation

Arterial Preservation Program

Background

Slow Erosion of Safety and Capacity

- Virginia's arterials have become "main streets" for local growth
- Placing direct access and traffic signals at every business or residential development adds to congestion on primary routes.
- Serves the local economy and tax revenues but over time at the expense of safety, capacity and mobility – affecting movement of people and goods across the state and region.



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Why This Matters

- Preparing for future traffic and economic development reduces the need for expensive, disruptive "retrofit" projects

- Route 3 is anticipated to see additional commercial and residential development

Purpose of the Study

VDOT Statewide Program Perspective

To preserve and enhance the capacity and safety of the Commonwealth's Arterial Preservation Network, while accommodating economic development and avoiding wide-scale road widenings

- **Result in a safer arterial highway system**
- **Preserve and enhance corridor capacity and efficiency**
- **Maintain Commonwealth's mobility & thus economic competitiveness**
- **Lower long-term infrastructure capital and maintenance costs**

Purpose of the Study

Orange Co.

- Design safety into long term roadway development
- Allow Orange Co. to determine land use densities based on desired roadway network
- Maintain corridors' economic development potential
- Aid in the land development process by defining County/VDOT expectations
- Assist with the funding of roadway projects and reduce future spending by limiting the need to retrofit improvements

Land Owners

- Blueprint for developers and adherence to an adopted plan clarifies expectations which reduces potential for transportation related issues
- Maintain size of market area (based on travel time to businesses)
- Assist land owners in realizing maximum densities permitted in Comprehensive/Master Plans
- Support a corridor's economic development potential by having an adopted roadway plan

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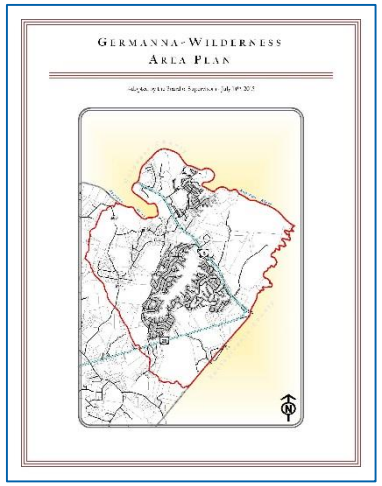
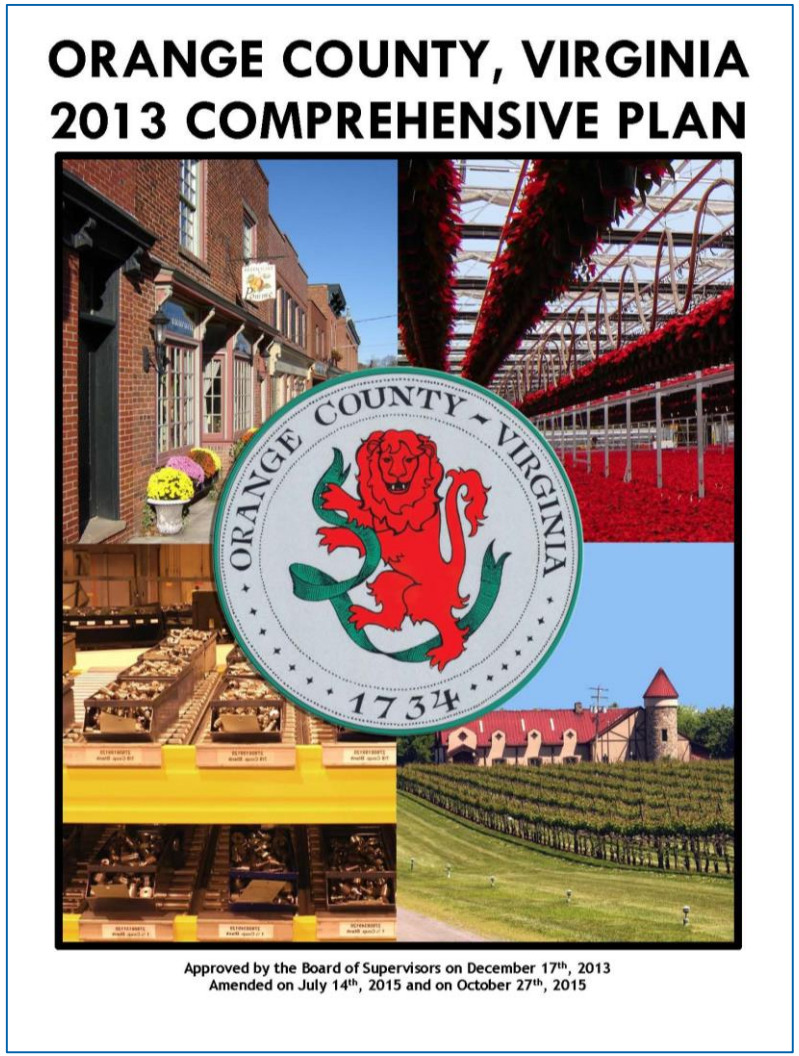
Purpose of the Study



Germanna-Wilderness Area Plan (GWAP) adopted into Comprehensive Plan July 2015

Orange County
Route 3
Arterial Preservation Plan

Goal is to get Route 3 AMP adopted into Comprehensive Plan



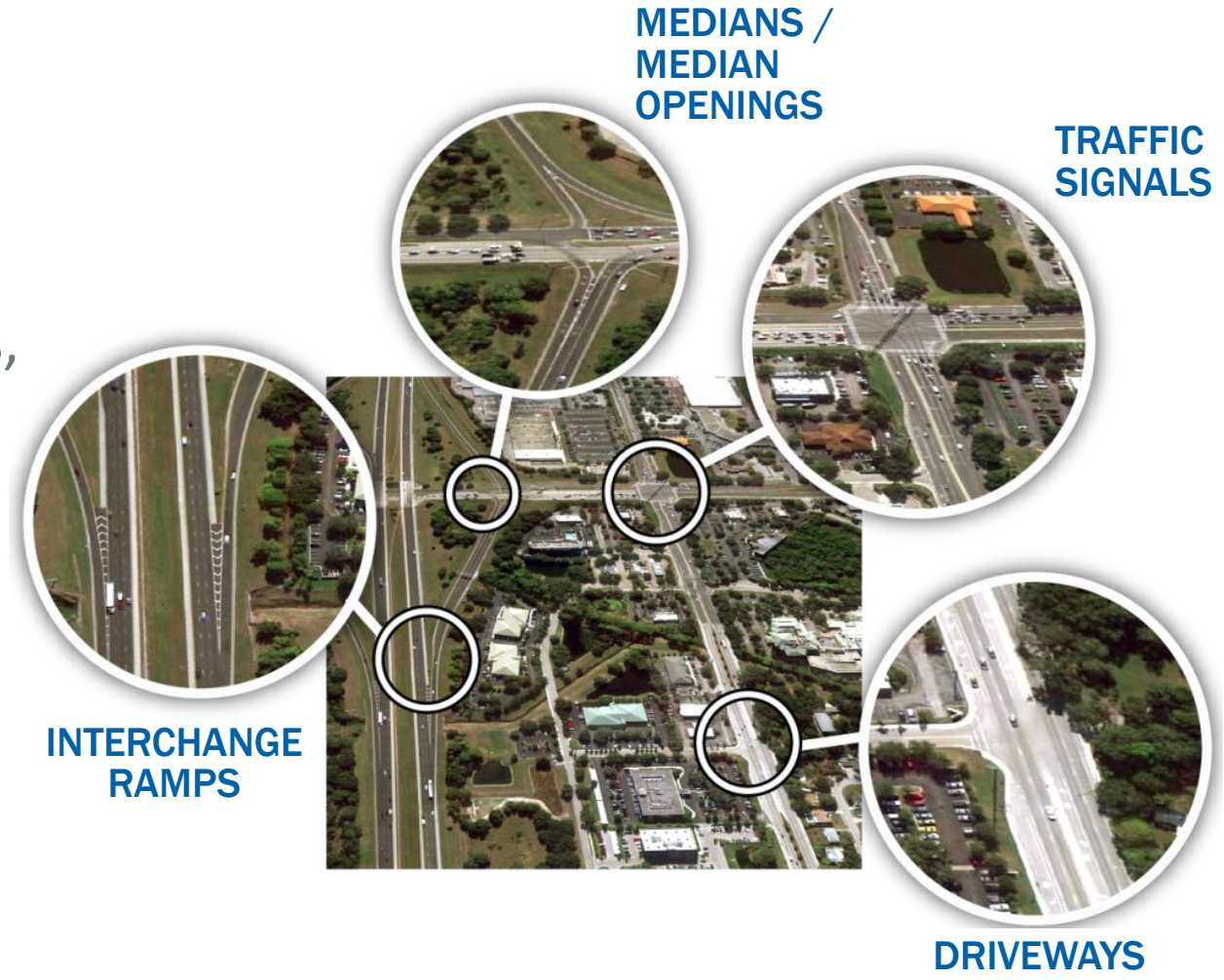
Arterial Preservation Program

Access Management Overview

Access Management

What is Access Management?

Access management involves the location, spacing, and design of driveways, medians, median openings, traffic signals, and interchanges



Guiding Principles

- Limit the number of conflict points
- Separate conflict points
  - Reduce the number of median openings
  - Improve driveway design
  - Consolidate driveways to reduce frequency
- Look at conflict points from a network perspective

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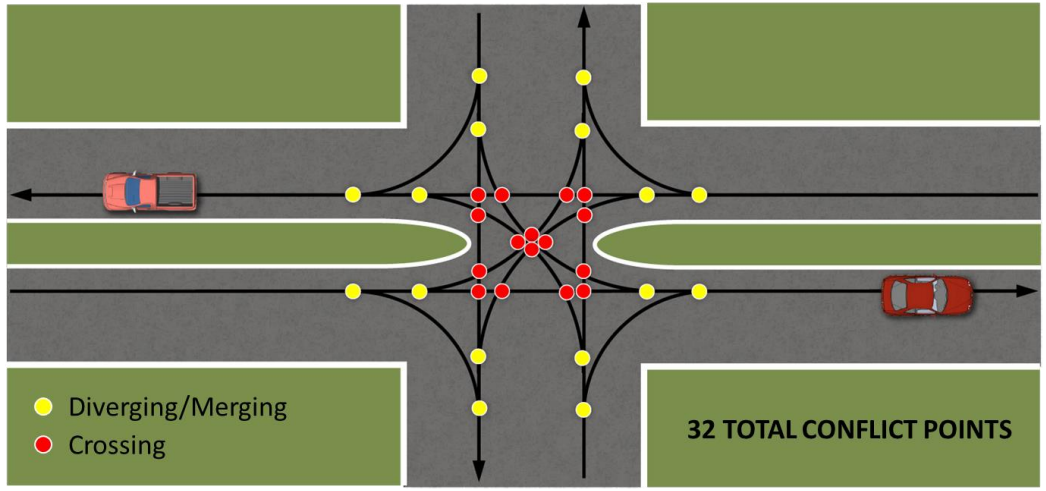
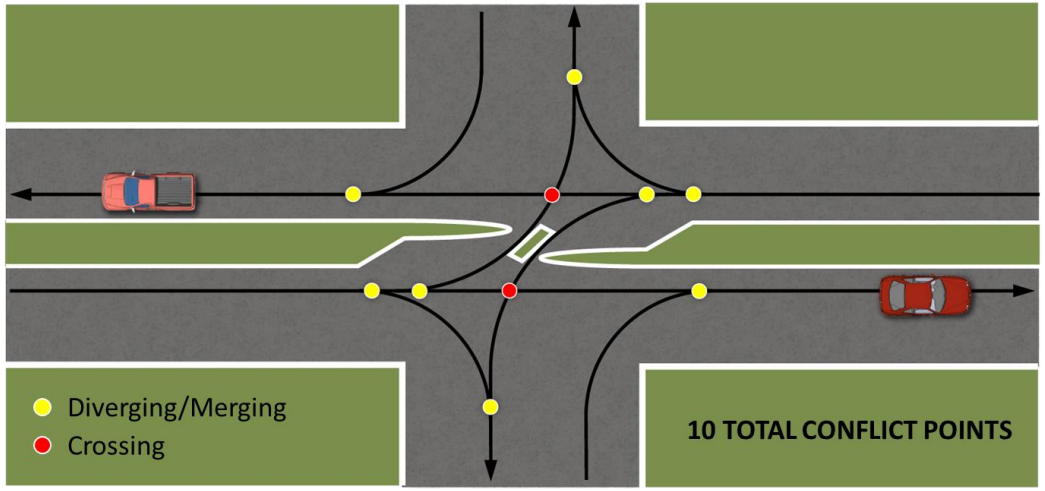
Conflict Points

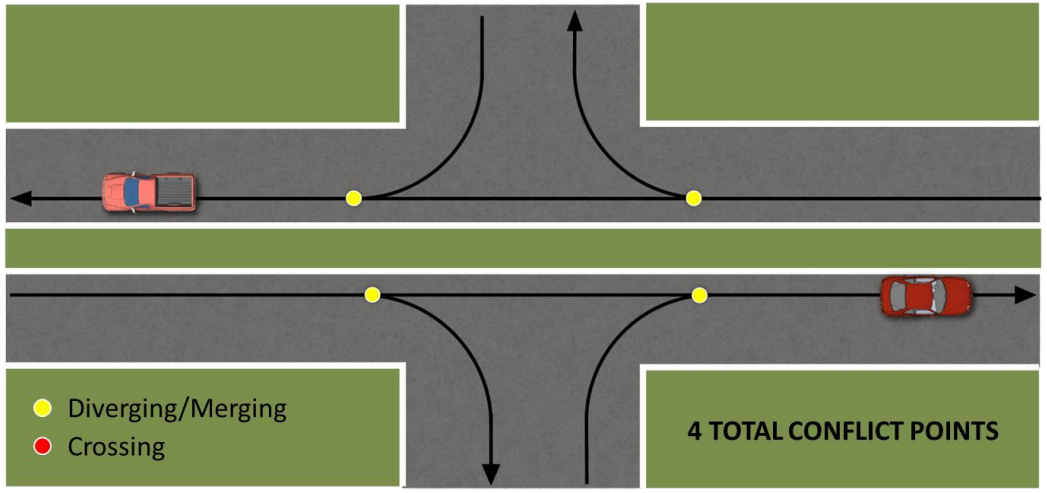
FULL UNSIGNALIZED MEDIAN OPENING



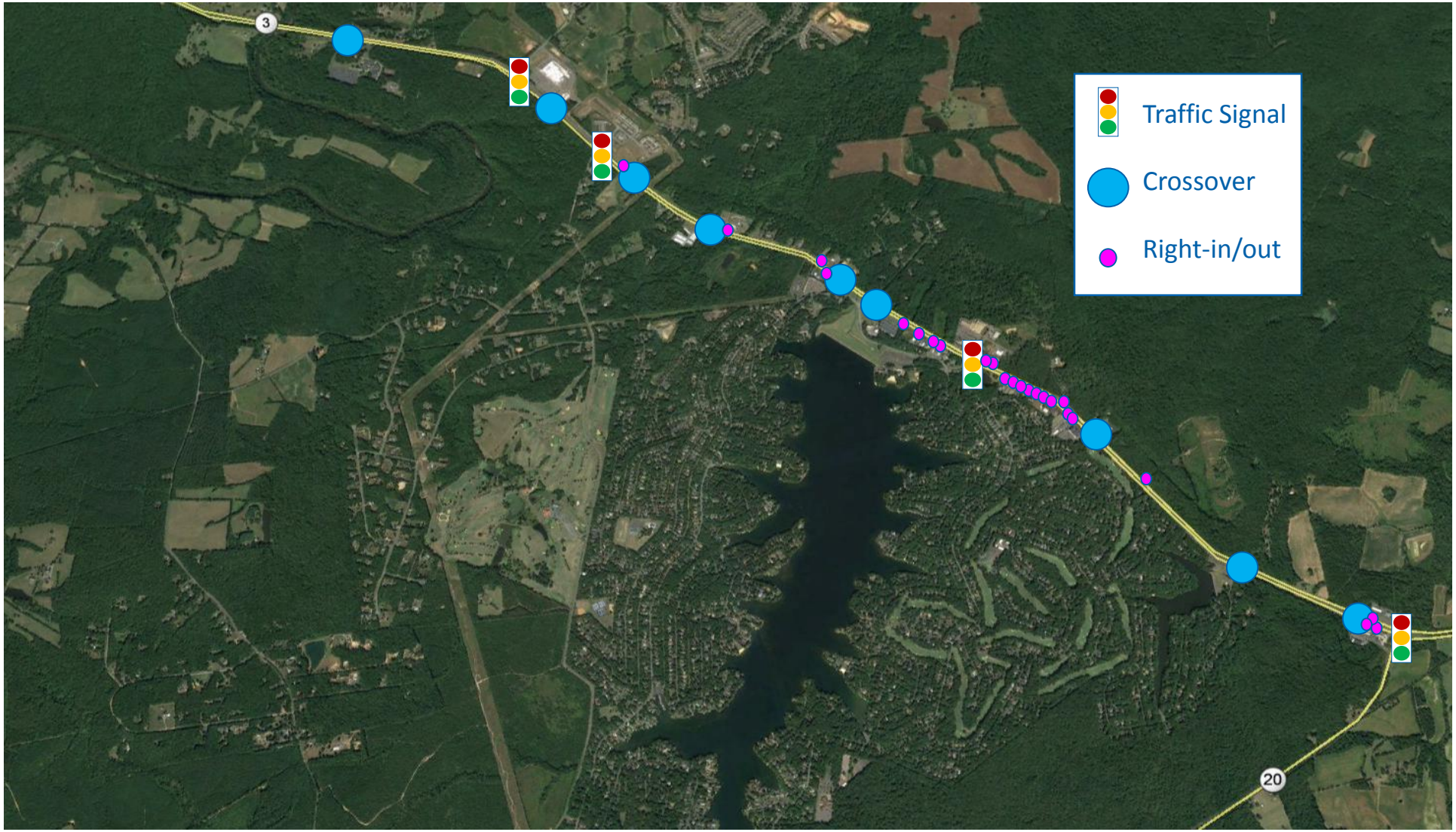
DIRECTIONAL MEDIAN OPENING



RIGHT-IN/RIGHT-OUT DRIVEWAY

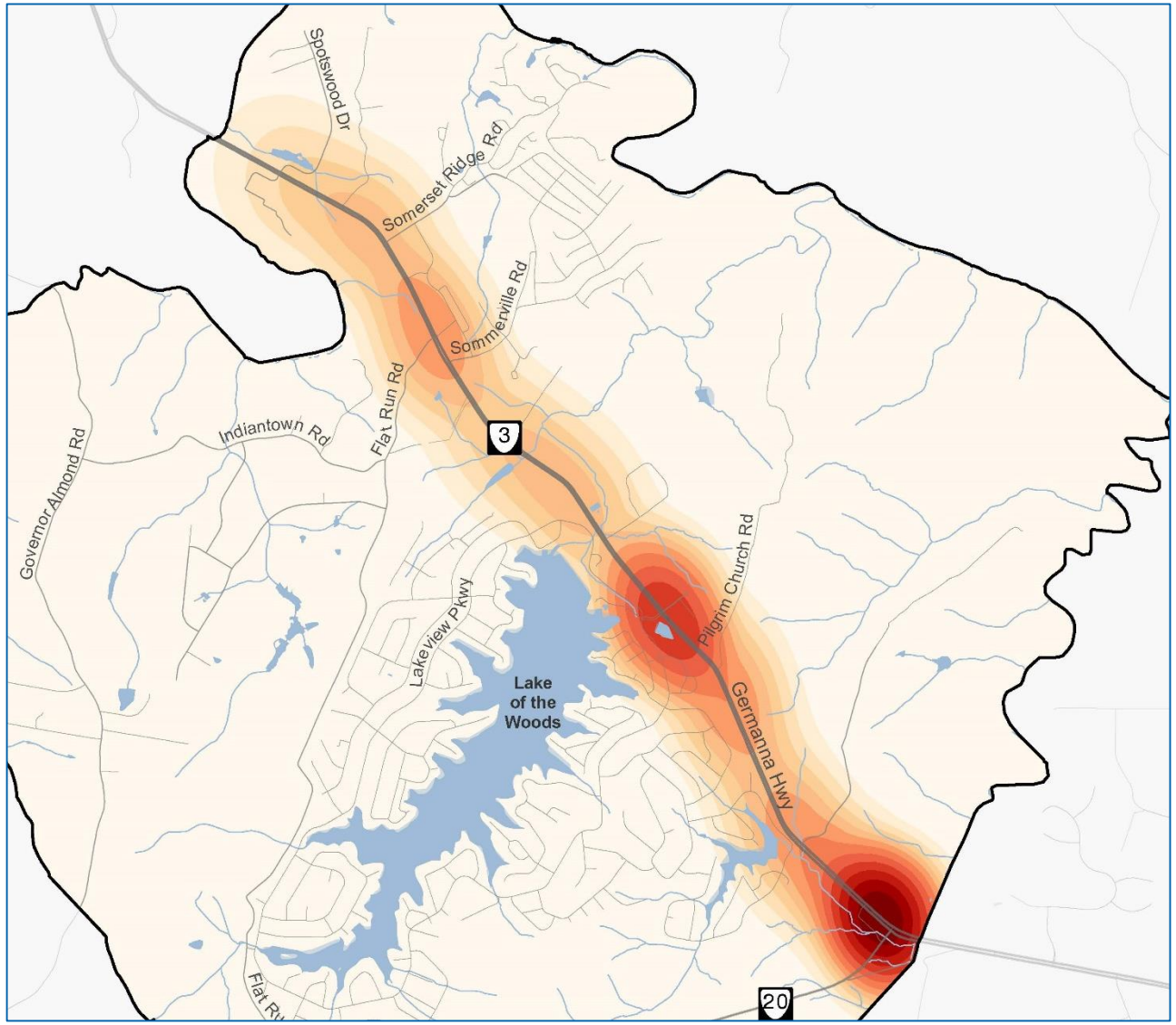


Access Points

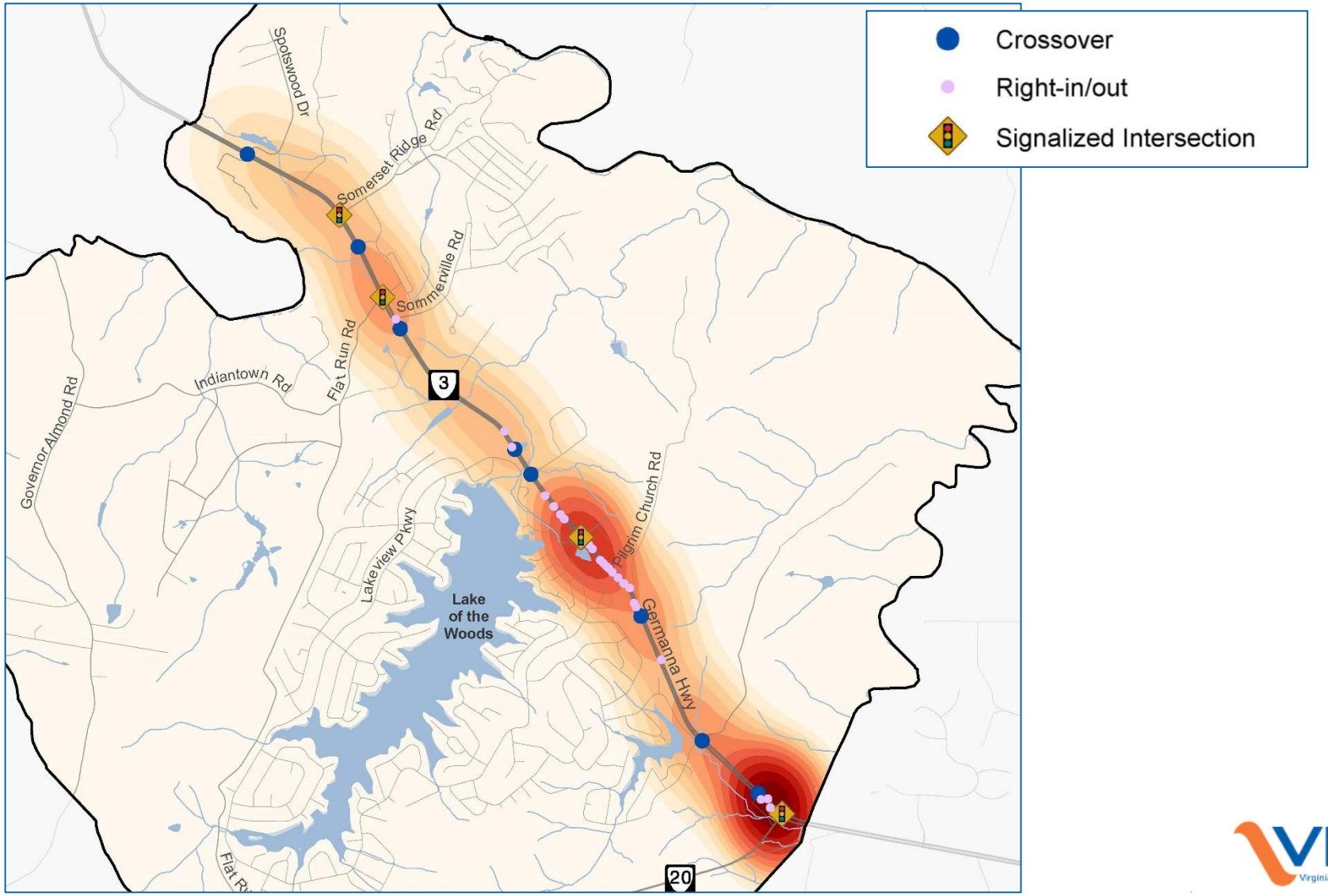


High Crash Locations

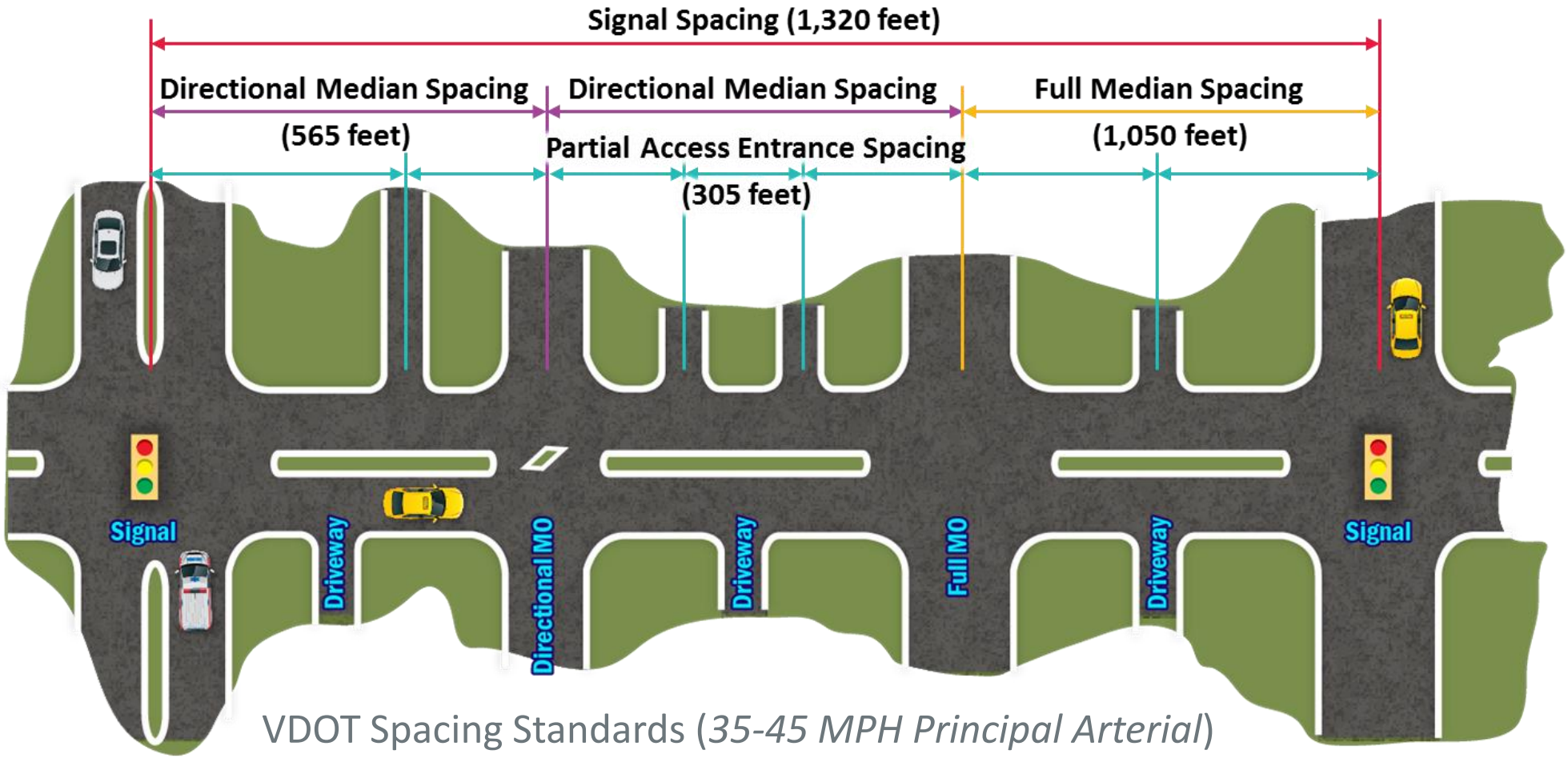
2011-2017



High Crash Locations



Access Management Guidelines

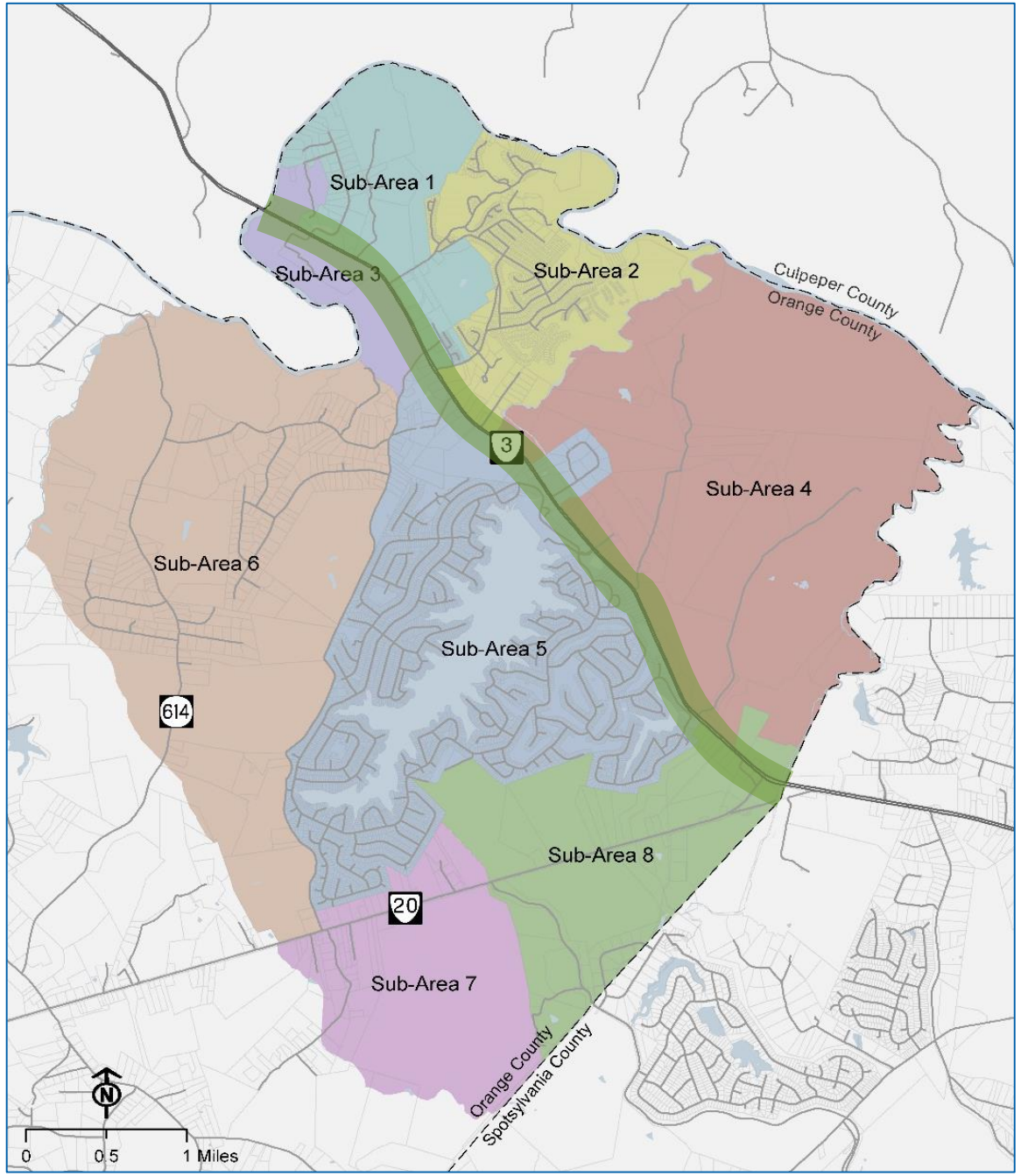


VDOT Spacing Standards (*35-45 MPH Principal Arterial*)

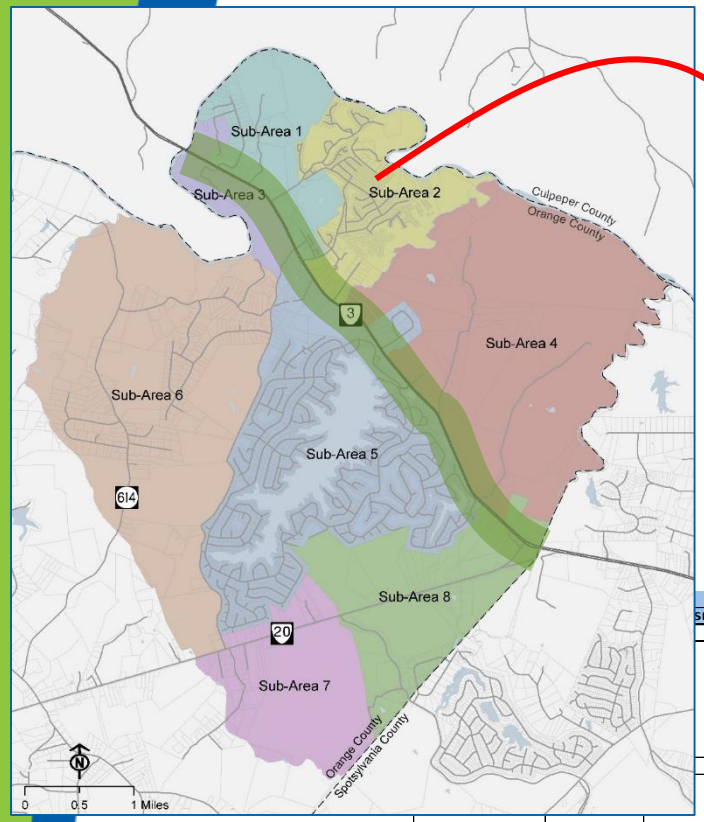
Arterial Preservation Plan

Route 3 Corridor

Study Area


Sub-Area 1
Sub-Area 2
Sub-Area 3
Sub-Area 4
Sub-Area 5
Sub-Area 6
Sub-Area 7
Sub-Area 8
Culpeper County
Orange County
Orange County
Spotsylvania County
3
614
20
N
0
0.5
1 Miles

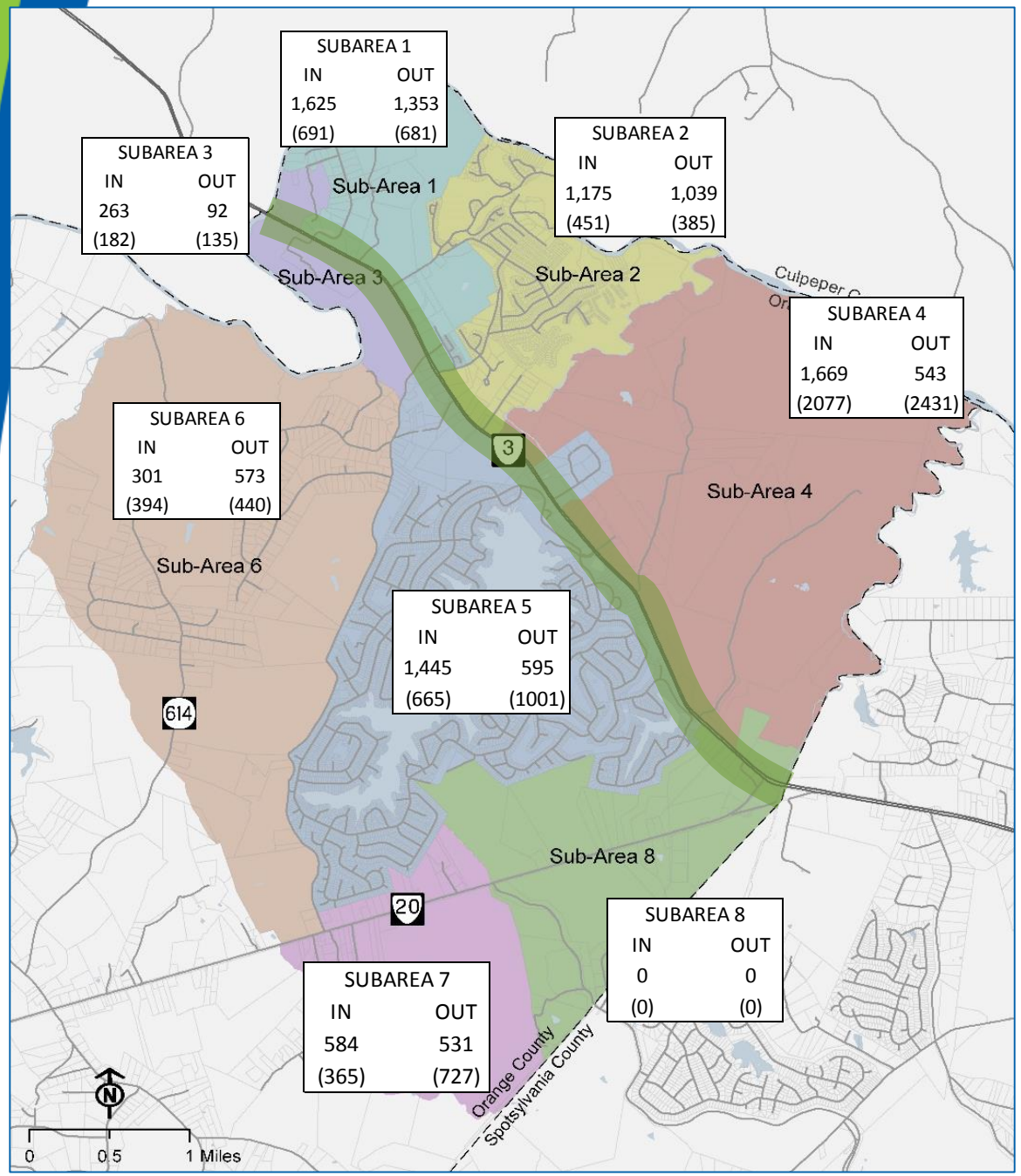
Future Development



Sub Area 2 Planned Development

			Residential		Notes		AM Percent	PM Percent	KSF/DU/AC	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips		
		SF)	Acres	Units						Daily Total	Ingres	Egress	AM Total	Ingress	Egress	PM Total	Ingress	Egress
						Low-Turnover	0%		0	0	0	0	0	0	0	0	0	0
						Medium-Turnover	0%		0	0	0	0	0	0	0	0	0	0
						High-Turnover	0%		0	0	0	0	0	0	0	0	0	0
		Built-Out				High Density Residential	0%		0	0	0	0	0	0	0	0	0	0
						Low Density Residential	0%		0	0	0	0	0	0	0	0	0	0
						Internal Capture	15%			0	0	0	0	0	0	0	0	0
						Total				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
						Low-Turnover	0%		0	0	0	0	0	0	0	0	0	0
						Medium-Turnover	0%		0	0	0	0	0	0	0	0	0	0
						High-Turnover	0%		0	0	0	0	0	0	0	0	0	0
					single family det	High Density Residential	0%		0	0	0	0	0	0	0	0	0	0
						Low Density Residential	100%		11	105	53	53	8	2	6	11	7	4
Edgewood				11		Internal Capture - w/I SB2	10%	47%		-11	-5	-5	-1	0	-1	-5	-3	-2
						Internal Caputre btwen SB1&2	9%	46%		-8	-4	-4	-1	0	0	-3	-2	-1
						Adjustment SB1&2				1	1	1	0	0	0	0	0	0
						Internal Caputre btwen SB2&4	26%	33%		-23	-12	-12	-2	-1	-1	-1	-1	0
						Adjustment SB2&4				0	0	0	0	0	0	0	0	0
						Total				**64**	**33**	**33**	**4**	**1**	**4**	**2**	**1**	**1**
					55 total acres	Low-Turnover	45%		137,214	4,948	2,474	2,474	280	195	85	460	187	273
					20 acres res-townhome	Medium-Turnover	45%		137,214	14,924	7,462	7,462	808	564	244	1,337	718	619
					35 acres commercial	High-Turnover	10%		30,492	23,619	11,810	11,810	2,050	1,037	1,013	1,685	853	832
						High Density Residential	100%		175	1,090	545	545	83	15	68	100	66	34
					5 dwelling units/acre	Low Density Residential	0%		0	0	0	0	0	0	0	0	0	0
General Mixed Use	35	304,920	20	175	0.2 FAR for commercial	Internal Capture - w/I SB2	10%	47%		-4,458	-2,229	-2,229	-322	-181	-141	-1,684	-857	-826
						Internal Caputre btwen SB1&2	9%	46%		-3,611	-1,806	-1,806	-261	-147	-114	-873	-445	-429
						Adjustment SB1&2				507	254	254	28	29	0	67	50	16
						Internal Caputre btwen SB2&4	26%	33%		-9,625	-4,813	-4,813	-693	-393	-300	-360	-189	-171
						Adjustment SB2&4				-3	0	0	1	0	0	0	0	0
						Total				**27,391**	**13,697**	**13,697**	**1,973**	**1,119**	**855**	**732**	**383**	**348**
						Low-Turnover	0%		0	0	0	0	0	0	0	0	0	0
						Medium-Turnover	0%		0	0	0	0	0	0	0	0	0	0
						High-Turnover	0%		0	0	0	0	0	0	0	0	0	0
					250 Townhomes	High Density Residential	41%		248	1,545	773	773	118	22	96	141	93	48
					355 single fam det	Low Density Residential	59%		357	3,398	1,699	1,699	268	67	201	357	225	132
Wilderness Shores				605		Internal Capture - w/I SB2	10%	47%		-494	-247	-247	-39	-9	-30	-234	-149	-85
						Internal Caputre btwen SB1&2	9%	46%		-400	-200	-200	-31	-7	-24	-121	-78	-44
						Adjustment SB1&2				56	28	28	3	1	0	9	9	2
						Internal Caputre btwen SB2&4	26%	33%		-1,067	-534	-534	-83	-19	-63	-50	-33	-17
						Adjustment SB2&4				0	0	0	0	0	0	0	0	0
						Total				**3,038**	**1,519**	**1,519**	**236**	**55**	**180**	**102**	**67**	**36**
Total										**30,493**	**15,249**	**15,249**	**2,213**	**1,175**	**1,039**	**836**	**451**	**385**

Future Development



XXX – AM Peak Hour Traffic Volumes

(XXX) – PM Peak Hour Traffic Volumes

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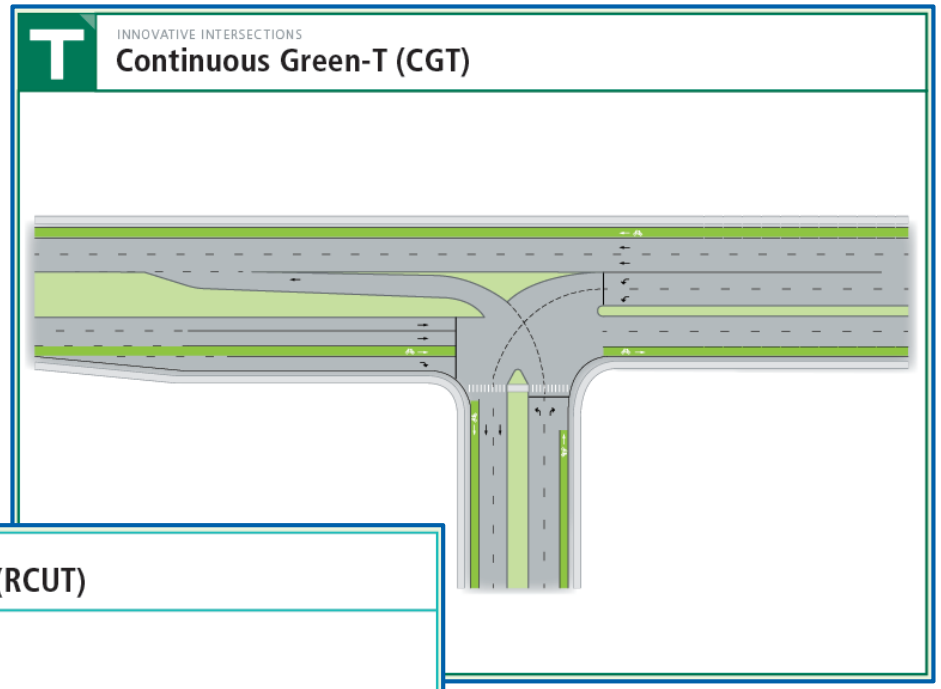
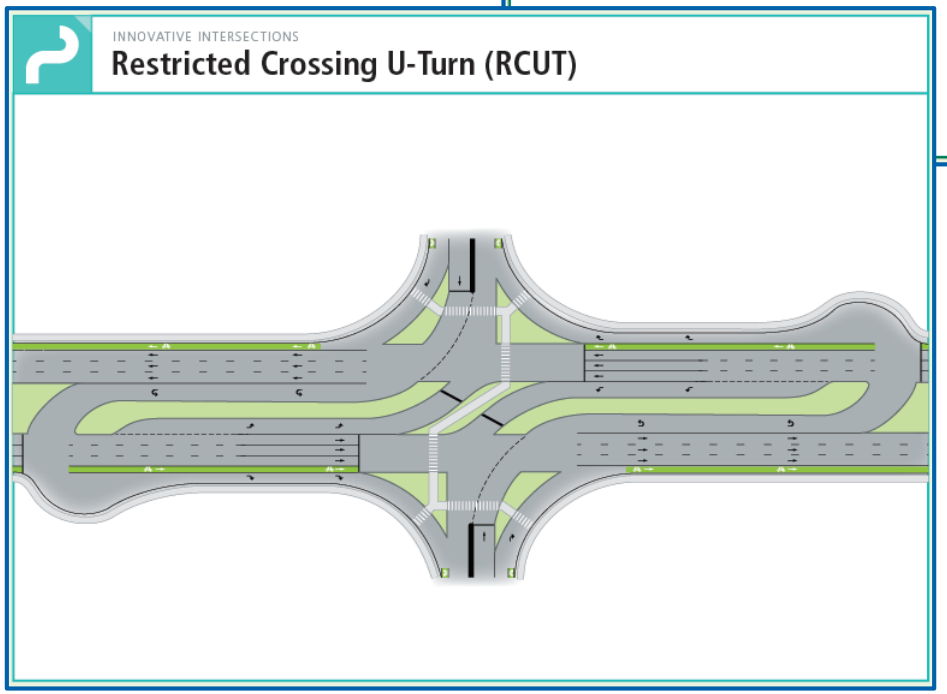
Arterial Preservation Program

Innovative Intersections Overview

Innovative Intersections

- Intersection designs which:
  - Improve safety
  - Reduce delay
  - Increase efficiency
- Can reduce delays and crashes as much as 50%
- Also known as:
  - Alternative
  - Non-traditional
  - Unconventional
  - Reduced Conflict





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Innovative Intersections

- Quick informational videos

Arterial Preservation Plan

Route 3 Corridor

Stakeholder Outreach

1. Germanna-Wilderness Steering Committee
2. Lake of the Woods
3. National Park Service (NPS)
4. Germanna Community College
5. Rappahannock-Rapidan Regional Commission
6. Somerset Community Association
7. Wilderness Shores Homeowners Association
8. Wilderness Shores Property Owners Association
9. Germanna Foundation
10. Chamber of Commerce
11. School Superintendent
12. Orange County Economic Development
13. Orange County Planning and Zoning
14. Rapidan Service Authority
15. Orange County Sheriff
16. Orange County Fire and EMS
17. **Orange County Citizens**

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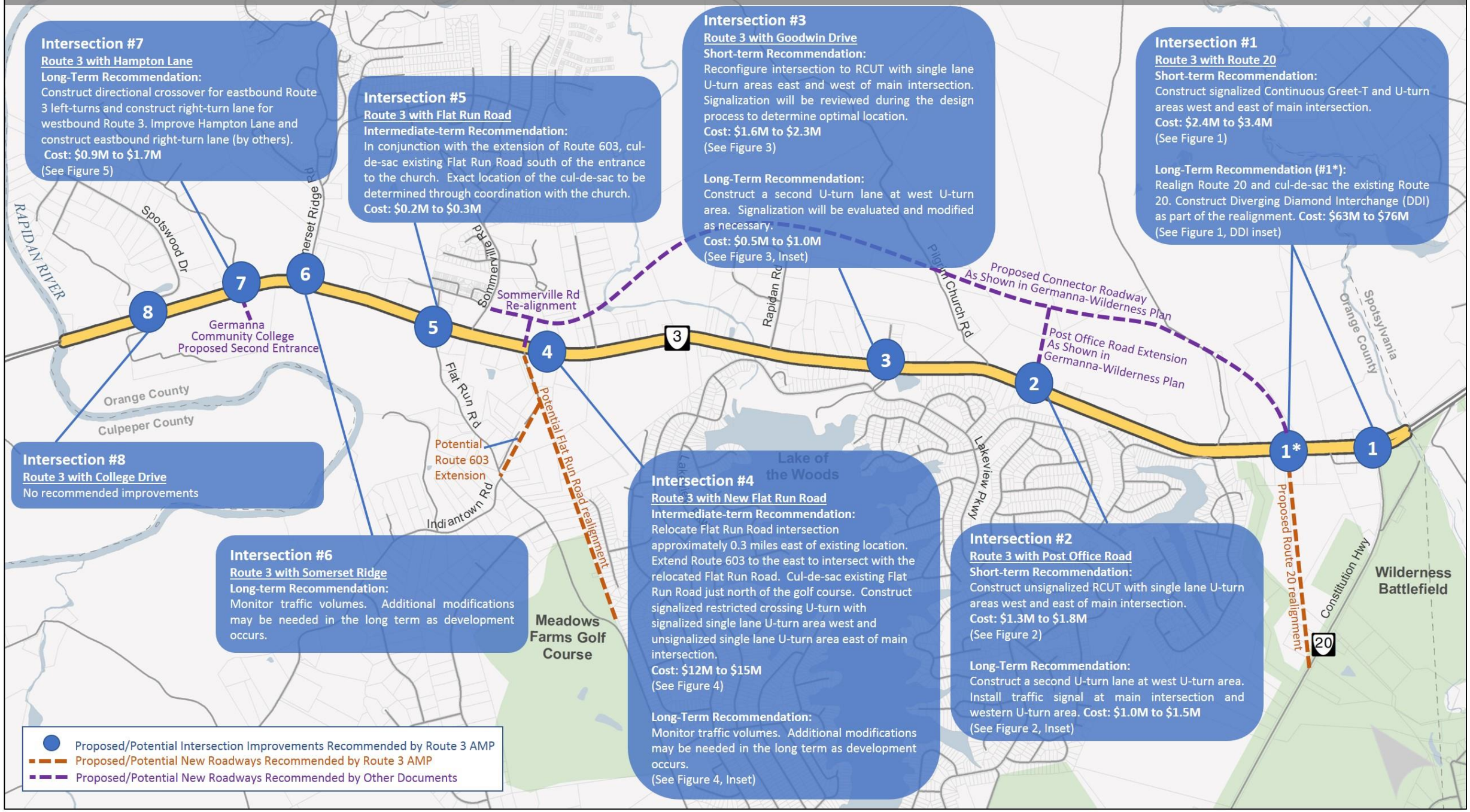
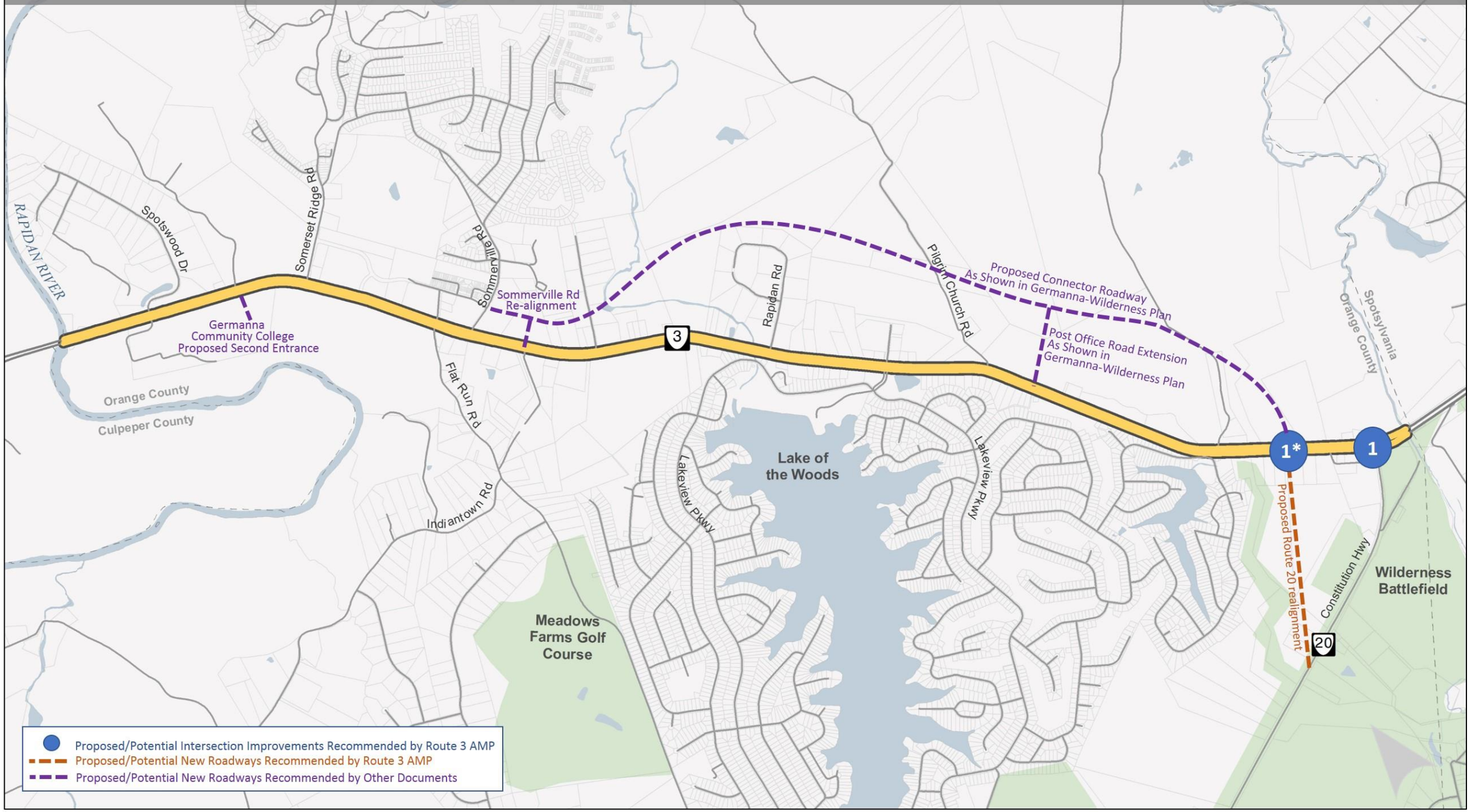
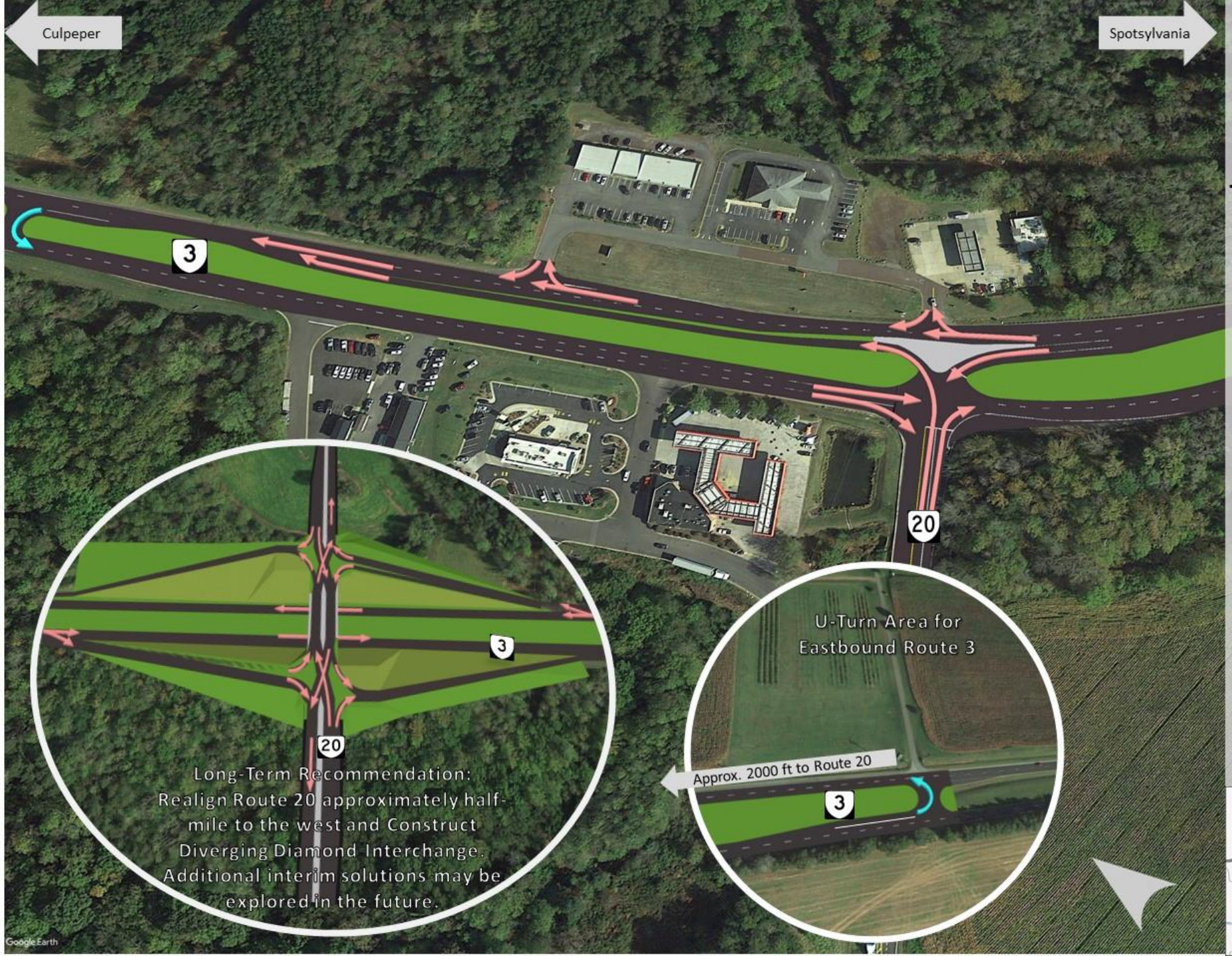
Route 3 Arterial Management Plan Recommendations



Route 3 Arterial Management Plan Recommendations





Route 3 Arterial Management Plan
Figure 1
Intersection #1: Route 3 with Route 20
Continuous Green-T (CGT)
Improvement Type: Congestion, Economic Development

Short-Term Recommendation: Construct signalized CGT with acceleration lane for vehicles turning left from Route 20 to westbound Route 3. Consolidate commercial entrances on eastbound Route 3 within the intersection influence area. Construct dual-lane left turn lanes for westbound Route 3. Construct U-turn areas east and west of main intersection. (pictured left)

Long-Term Recommendation: Realign Route 20 approximately half-mile west and cul-de-sac the existing Route 20 to eliminate the intersection with Route 3. Construct Diverging Diamond Interchange (DDI) as part of the realignment. (DDI inset). Configuration will require coordination with National Park Service and additional study to meet NEPA requirement.

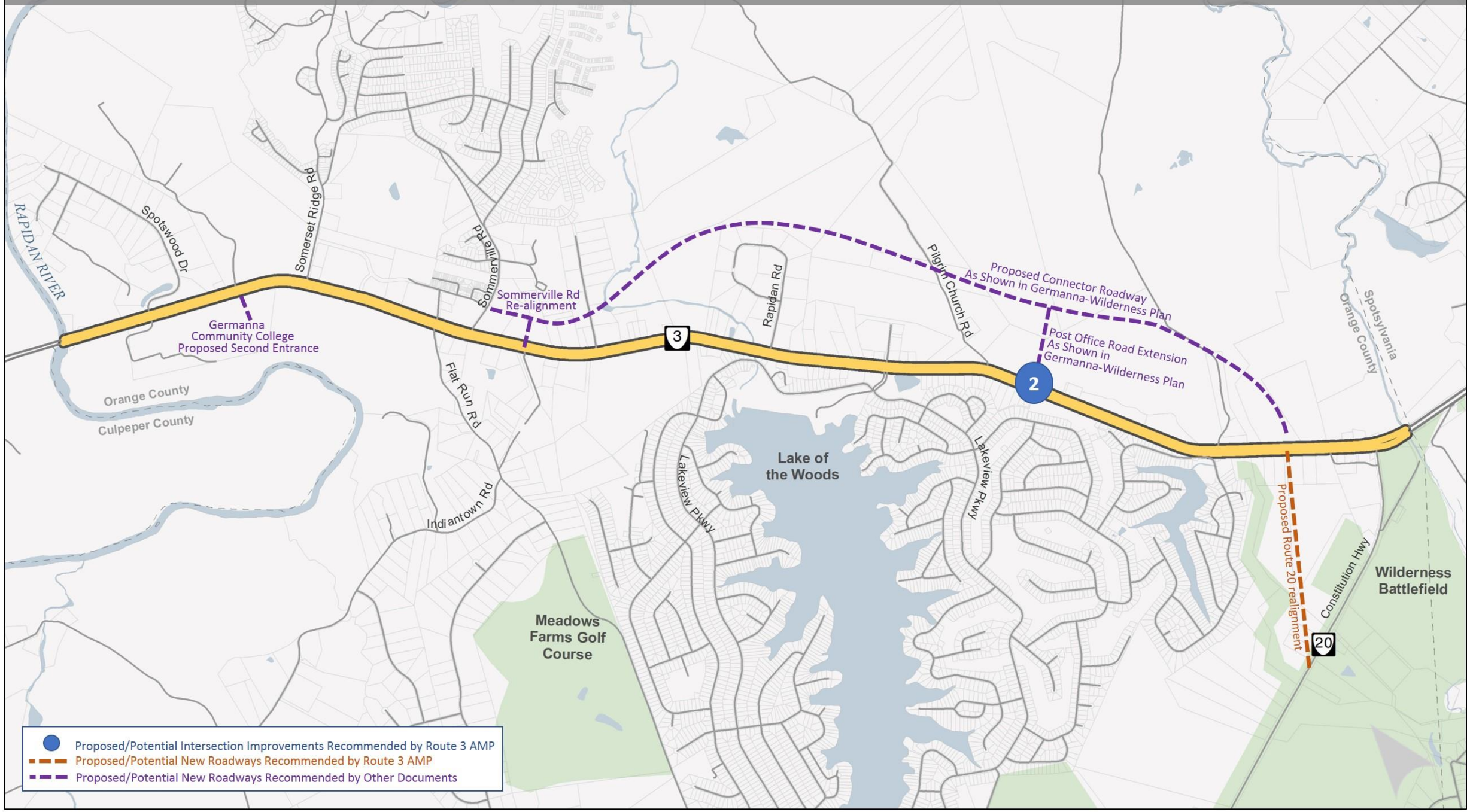
ROW Impacts: CGT acceleration lane and U-turns are within ROW. DDI and Route 20 realignment will require substantial land acquisition.

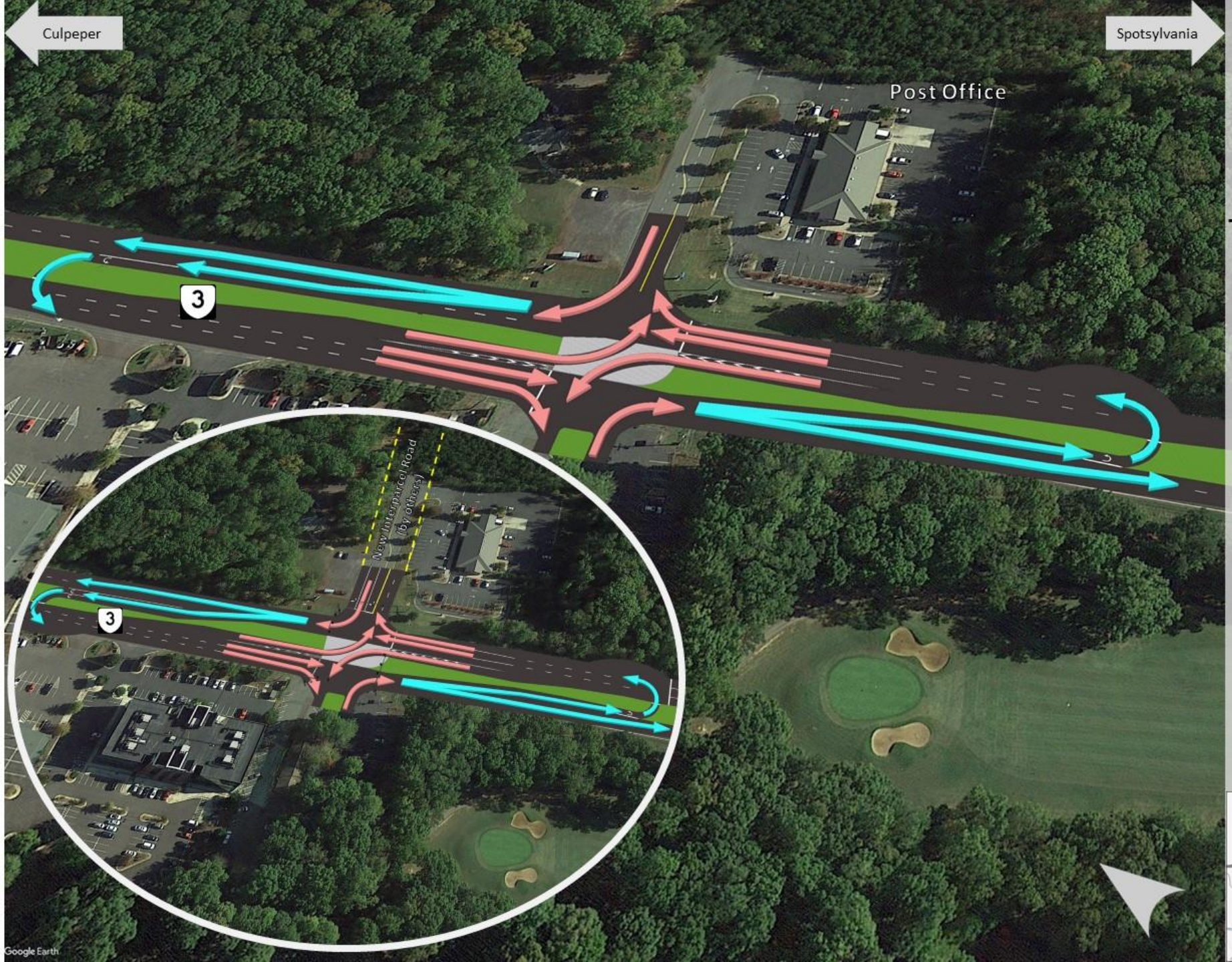
Cost:	**Time to Implement:**
Short-Term: $2.4M to $3.4M	When Funding is Available
Long-Term: $63M to $76M	As Development Occurs

Standard Movements

Re-routed movements

Route 3 Arterial Management Plan Recommendations





Route 3 Arterial Management Plan
Figure 2
Intersection #2: Route 3 with Post Office Roadway
Restrict Crossing U-Turn (RCUT)
Improvement Type: Congestion, Economic Development

Short-Term Recommendation: Construct unsignalized RCUT with single lane U-turn areas east and west of main intersection. Consolidate commercial entrances on westbound Route 3 within the intersection influence area. (Pictured left)

Long-Term Recommendation: Construct a second U-turn lane at western U-turn area. Install traffic signal at main intersection and western U-turn area. Widen Post Office approach to triple rights. (inset)
Construct a new inter-parcel roadway (by others) that ties into existing road adjacent to post office.

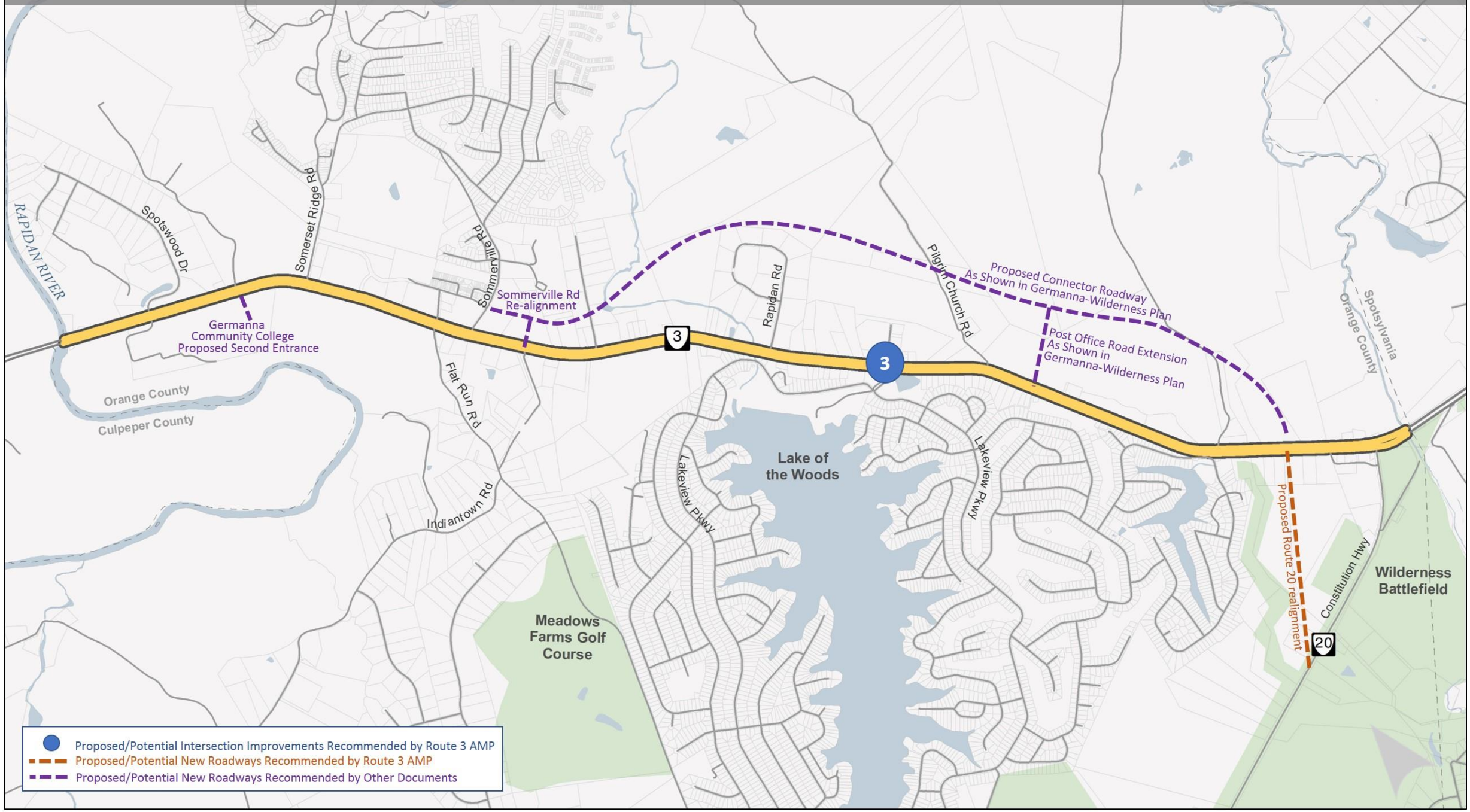
ROW Impacts: Minimal impacts at main intersection. Full build out of U-turn areas will require loons. Collector roadway will require land acquisition

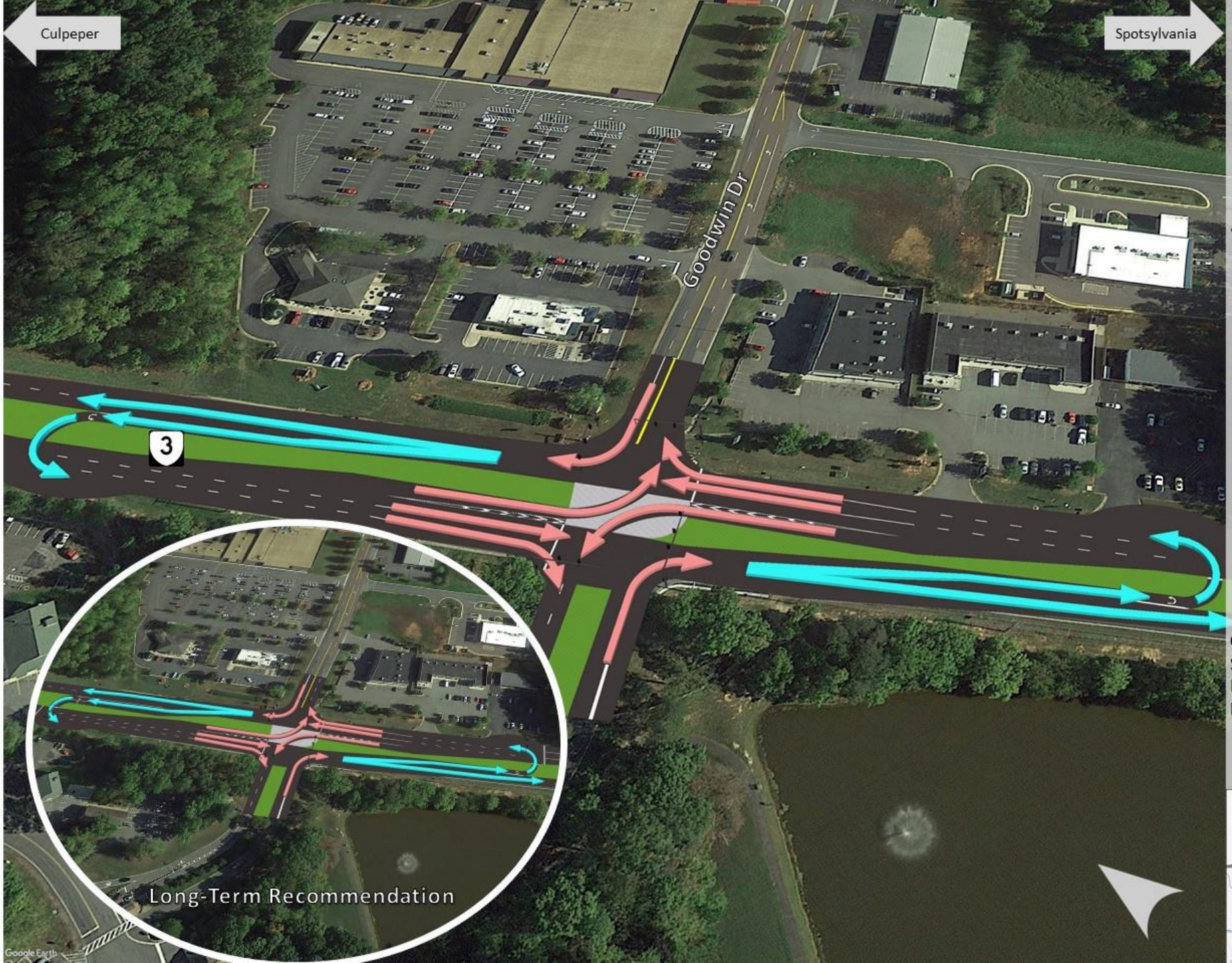
Cost:
Short-Term: $1.3M to $1.8M
Long-Term: $1.0M to $1.5M, Interparcel Rd (By Others)

Time to Implement:
As Development Occurs In Conjunction with Interparcel Road

Standard Movements
Re-routed movements

Route 3 Arterial Management Plan Recommendations





Route 3 Arterial Management Plan
Figure 3
Intersection #3: Route 3 with Goodwin Drive
Restricted Crossing U-Turn (RCUT)
Improvement Type: Congestion, Economic Development

Short-Term Recommendation: Reconfigure intersection to RCUT with single lane U-turn areas east and west of main intersection. Signalization will be reviewed during the design process to determine optimal location. Consolidate commercial entrances on eastern Route 3 within the intersection influence area. (Pictured Left)

Long-Term Recommendation: Construct a second U-turn lane for west U-turn area. Signalization will be evaluated and modified as necessary (inset). Extend Goodwin Drive to connect to future developments on east side of Route 3. (by others)

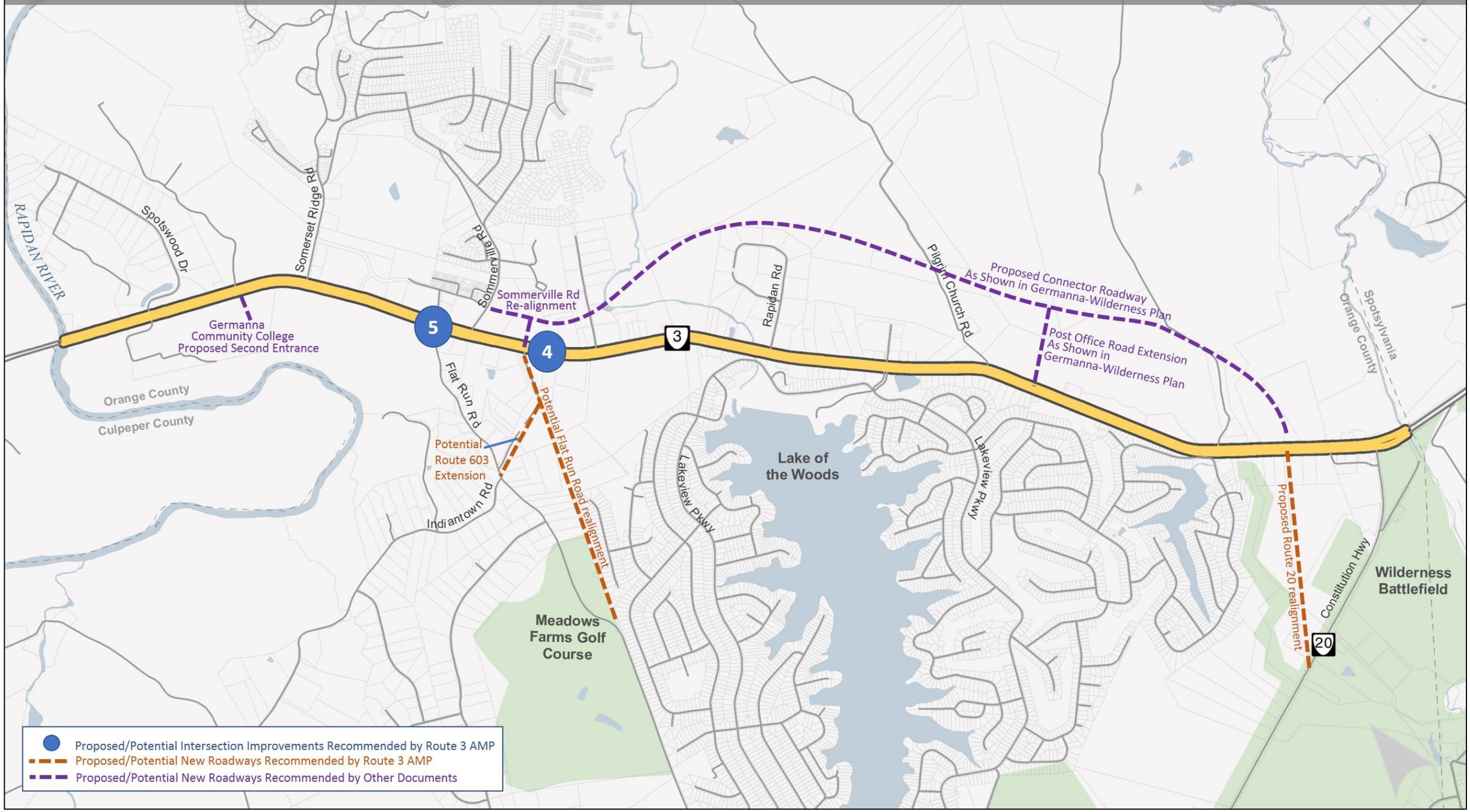
ROW Impacts: Minimal impacts at main intersection. Full build out of U-turn areas will require loons. Goodwin Drive will require land acquisition

Cost:	**Time to Implement:**
Short-Term: $1.6M to $2.3M	As Development Occurs
Long-Term: $0.5M to $1.0M	In Conjunction with
Extend Goodwin Dr (By Others)	Goodwin Dr Extension

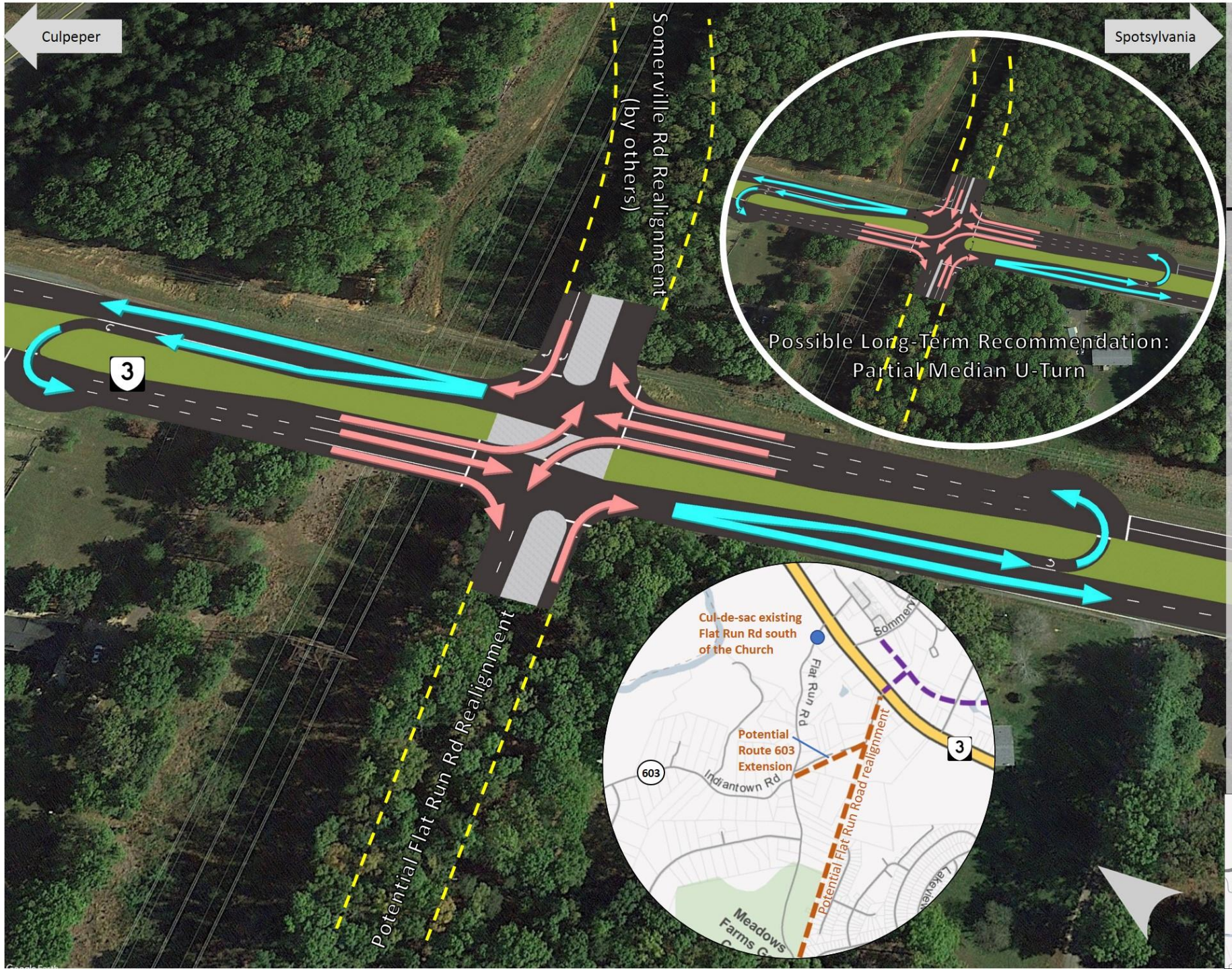
Standard Movements

Re-routed movements

Route 3 Arterial Management Plan Recommendations



Route 3 Arterial Management Plan
Figure 4
Intersection #4, #5: Route 3 with Flat Run Road
Restricted Crossing U-Turn (RCUT)
Improvement Type: Safety, Congestion, Economic Development, Land Use



Intermediate-Term Recommendation: Relocate Flat Run Road intersection approximately 0.3 miles east of existing location. Realign Somerville Road (by others) and Flat Run Road to new intersection. Extend Route 603 to the east to intersect with the relocated Flat Run Road (See Inset). Cul-de-sac existing flat run road just south of the church and coordinate with the church to determine the exact location of the cul-de-sac. Just north of the gulf course, cul-de-sac existing Flat Run Road and abandon the portion of the roadway within the golf course limits. Construct restricted crossing U-Turn permitting left-turns from Route 3. Signalize main intersection and west U-turn areas. (pictured left) Close existing Somerville Road intersection with Route 3.

Long-Term Recommendation: Monitor traffic volumes. Additional modifications may be needed in the long term as development occurs.

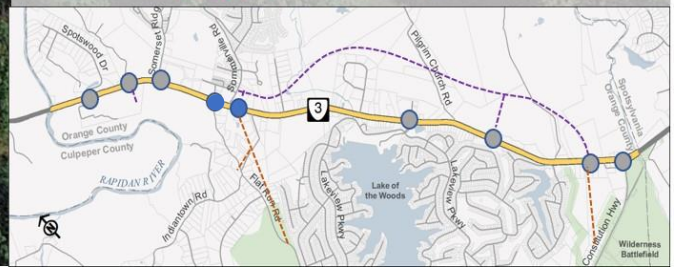
ROW Impacts: Relocation and realignment of existing intersection of Route 3 with Flat Run Road will require substantial land acquisition along Route 3. Both realignments of Flat Run Road and Somerville Road will require substantial land acquisition and possible utility relocation.

Cost:
Intermediate-Term:
$12 to $15M
Somerville Rd Realignment
(By Others)

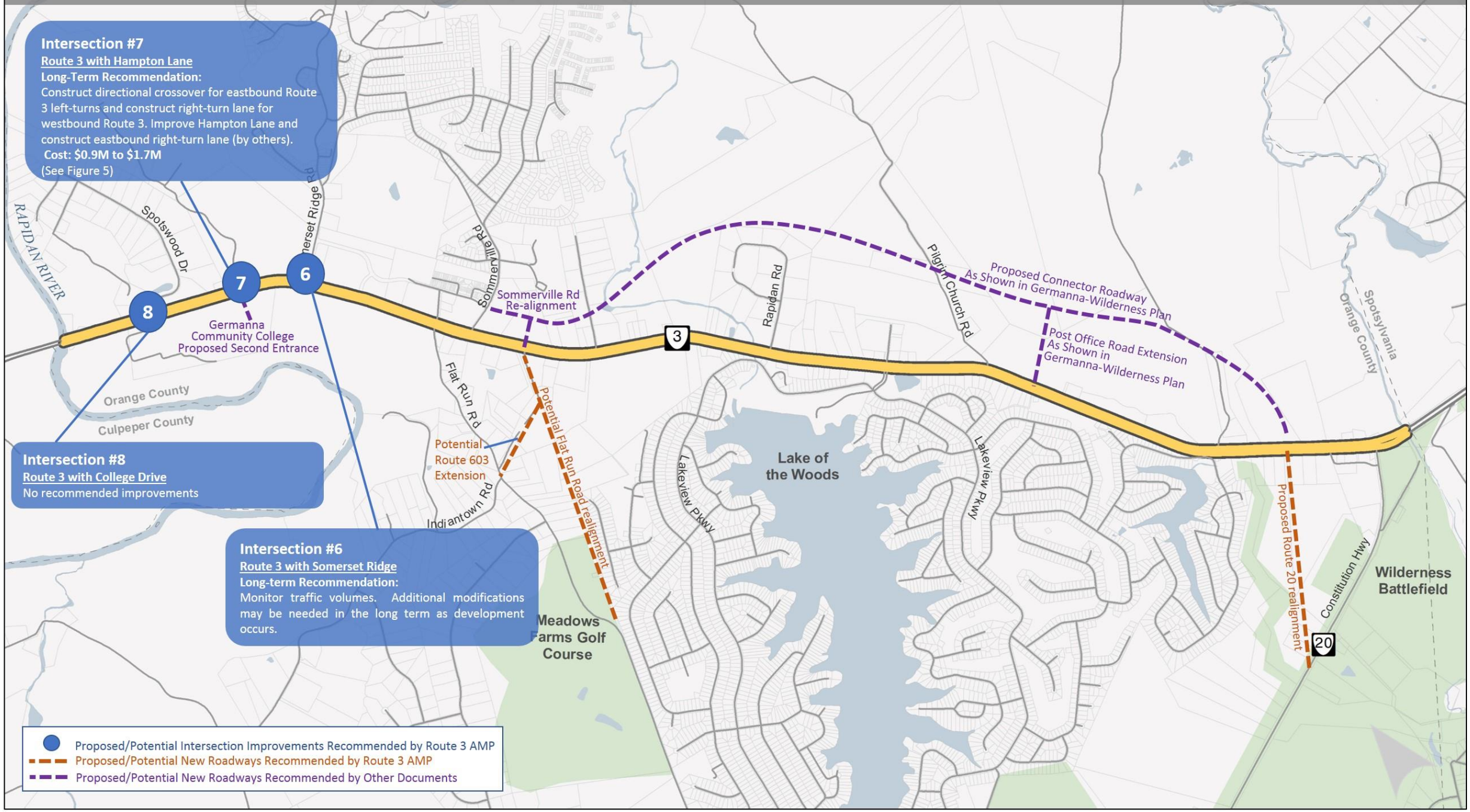
Time to Implement:
When Funding is Available
As Development Increases

Standard Movements

Re-routed movements



Route 3 Arterial Management Plan Recommendations



Route 3 Arterial Management Plan
Figure 5
Intersection #7: Route 3 with Hampton Ln
Directional Median
Improvement Type: Economic Development

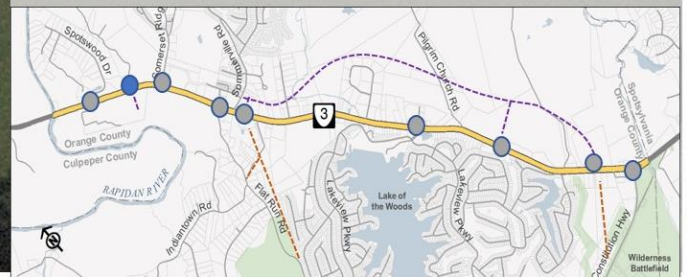
Long-Term Recommendation: Construct directional crossover permitting left-turns from eastbound Route 3. Construct right-turn lane for westbound Route 3. (pictured left) Improve Hampton Lane and construct eastbound right-turn lane on Route 3(by others)

ROW Impacts: Crossover is within ROW. Right turn lane will require minimal ROW acquisitions.

Cost:
$0.9M to $1.7M
Hampton Ln Improvement
(By Others)
Germanna Community
College Second Entrance
(By Others)

Time to Implement:
As Development Occurs

Standard Movements



Next Steps

- Finalize Study Report

- Work with County officials to implement solutions
  - Identify priorities & seek funding
  - No date has been established for construction
  - Recommendations will be implemented as opportunity and funding permits

How to find more information

- Arterial Preservation Program Website
  - http://www.virginiadot.org/programs/vdot_arterial_preservation_program.asp