



County of Fairfax, Virginia

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# Intersection Improvement Study at Spring Hill Road and Lewinsville Road

*Public Meeting*  
*6/5/2019*



# Agenda

- Introductions
- Project Purpose/Needs
- Existing Conditions Overview
- Initial Improvement Concepts
- Community Outreach (Spring 2018)
- Revised Improvement Concepts
- Next Steps
- Questions/Comments



# Project Purpose/Needs

- Relieve peak hour congestion
- Improve traffic operations and safety
- Develop mitigation measures to address traffic operations and safety
- Enhance pedestrian and bicycle facilities

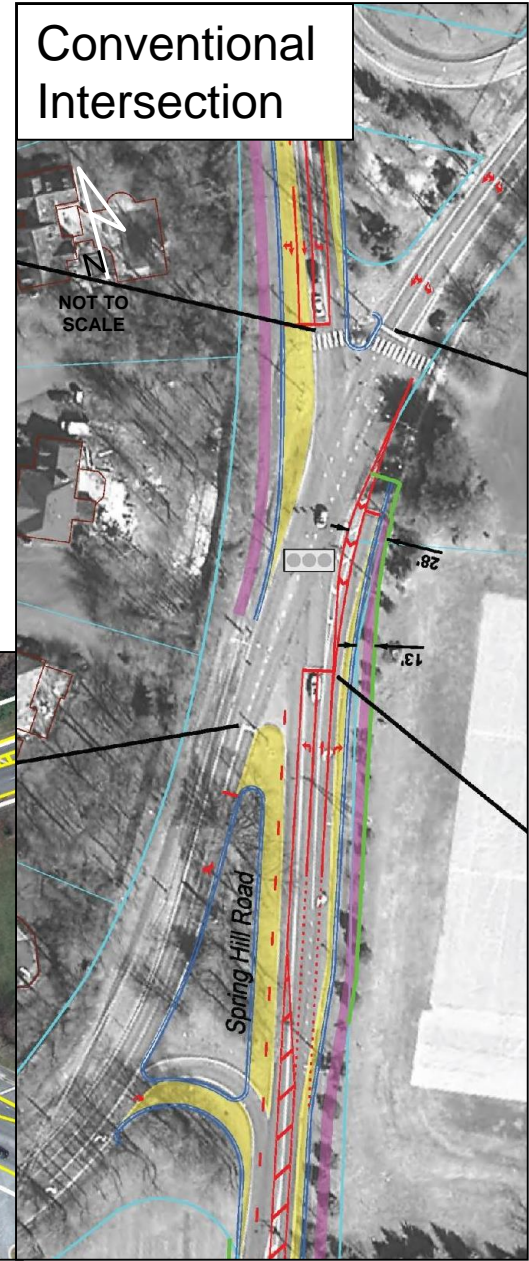
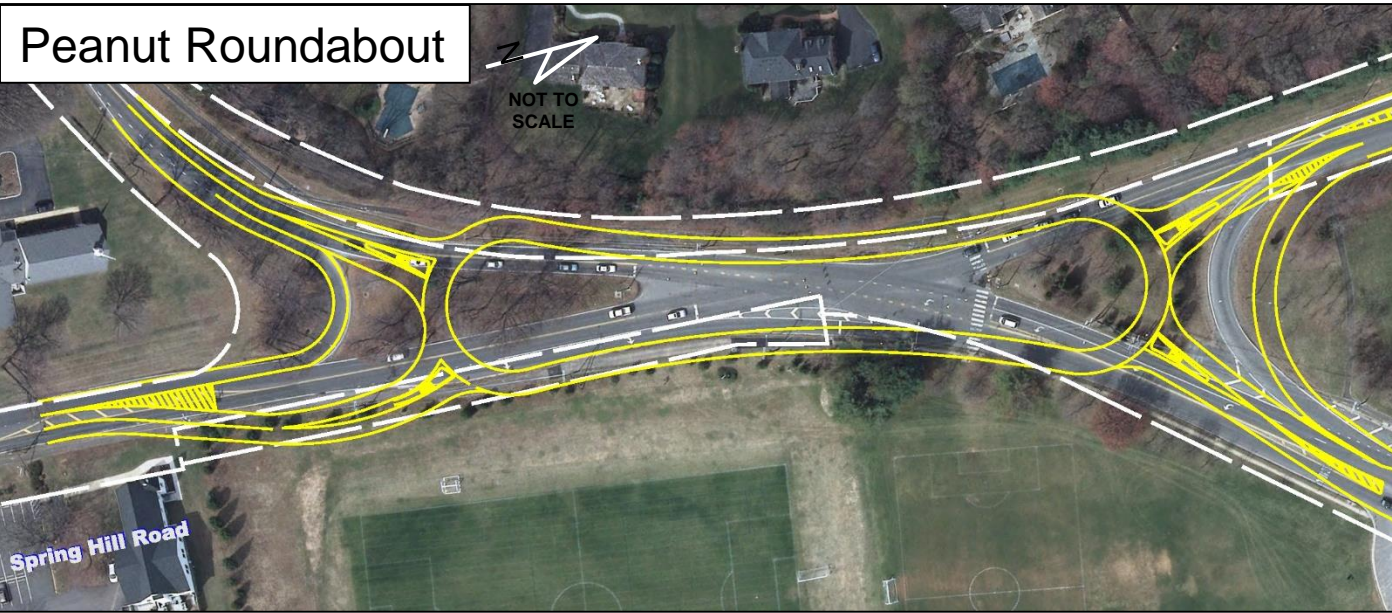






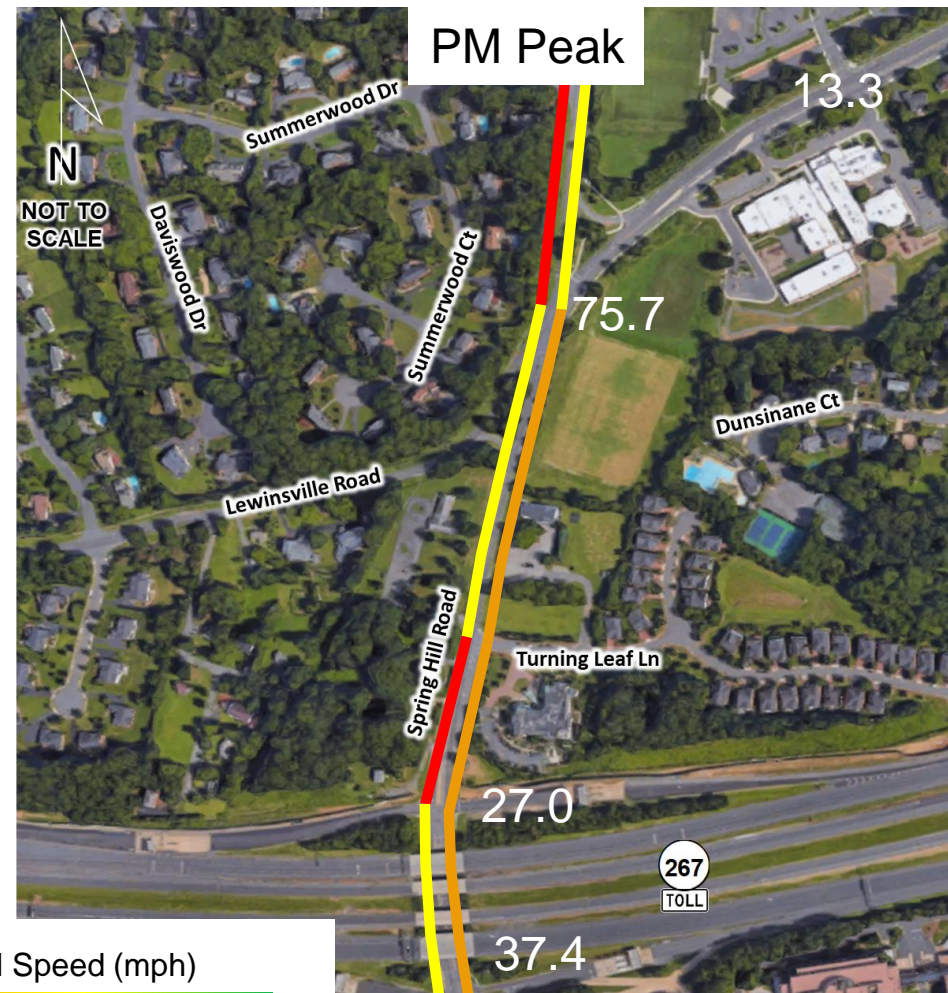
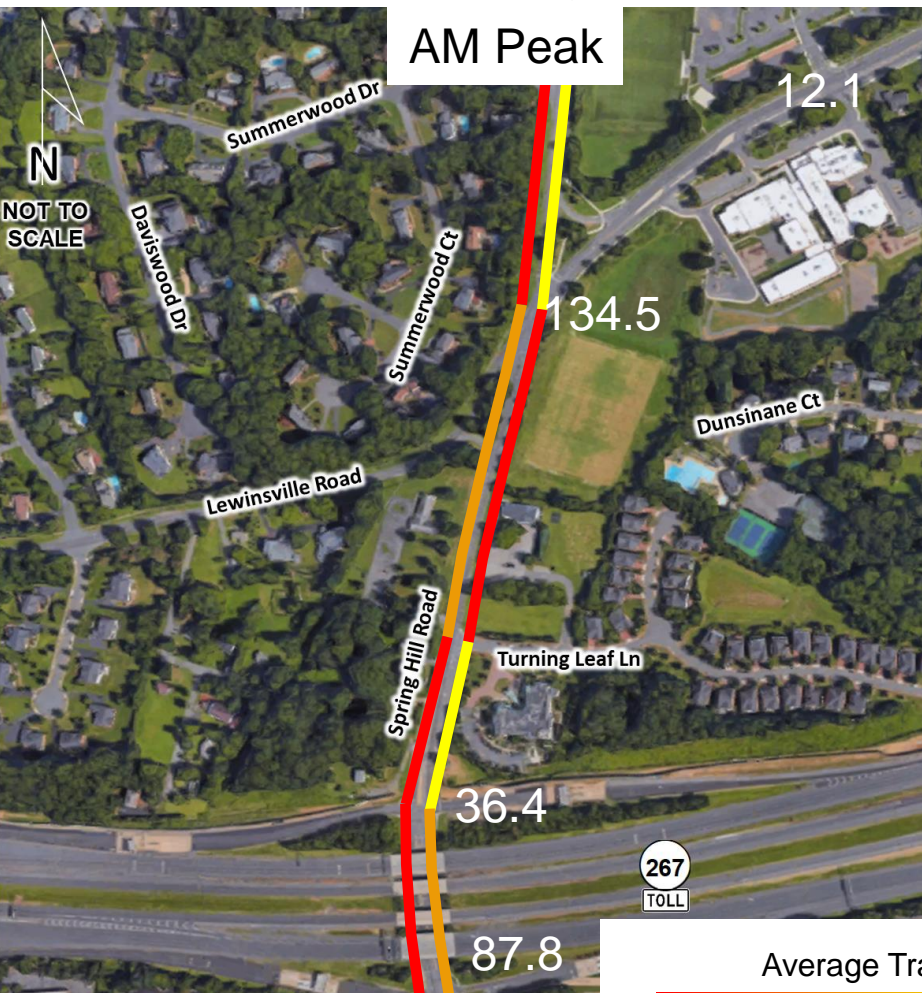
# Previous Efforts

- Tysons Neighborhood Study
- Mitigated traffic signal option recommended as part of study





# Existing Conditions – Operations



Based on data collected on  
Thursday, January 26, 2017

#.# - Overall Intersection Delay\*  
\*secs/veh - results based on VISSIM analysis





# Existing Conditions – Crash History

## Summary of Study Area Crashes

January 1, 2011 - December 31, 2015

Total Crashes: 33

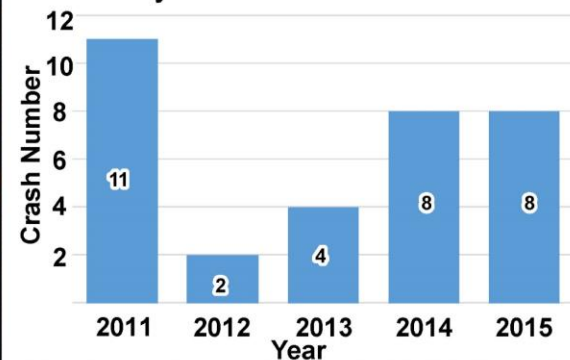
Crash Severity: 42% Injuries; 58% Property Damage Only

Peak Period: 21% AM; 36% PM; 43% Off Peak

## Crashes by Collision Type

- Rear End (21 crashes, 64%)
- Angle (4 crashes, 12%)
- Head On (5 crashes, 15%)
- Sideswipe - Same Direction (1 crash, 3%)
- Sideswipe - Opposite Direction (1 crash, 3%)
- Fixed Object - Off Road (1 crash, 3%)

## Crashes by Year





# Existing Conditions – Crash History

- Head on crashes
  - Unusual geometry creates driver confusion
- Angle crashes
  - No eastbound protected left-turn signal phase (green arrow)
  - Unusual geometry creates driver confusion
  - Large intersection footprint makes it difficult to judge gaps for turning
- Rear end crashes
  - Typical crashes at traffic signals due to driver inattention or confusion
  - Northbound right-turn crashes due to failure to yield
  - Eastbound right-turn crashes due to failure to yield
  - No left-turn lanes on the eastbound, northbound, and southbound approaches



# Intersection Improvement Concepts

- Preliminary sketch layouts based on updated traffic forecasts
- Geometry and operations refined based on preliminary traffic analysis
- Bicycle and pedestrian accommodations incorporated
  - Countywide Trails Plan, October 2014
  - Countywide Bicycle Master Plan, adopted October 2014
- Refined intersection layout based on community, county staff, and supervisor feedback
- Minimize impacts to private properties and natural environment





# Intersection Improvement Concepts

- Four concepts developed with key features
  1. Additional turn lanes → separate through and left-turn traffic
  2. Roundabout configuration → slow traffic and improve safety
  3. Rerouted turning movements → simplify signal operations
  4. Split intersections → reduce intersection footprint and simplify signal operations (i.e. two intersections instead of one)



# Measures of Effectiveness

- Operations
- Safety benefits
- Bicycle and pedestrian accommodations
- Right-of-way
- Constructability
- Cost
- Environmental Impact



# Community Outreach

- Community Meeting (May 2018)
  - Summary of existing conditions
  - Present initial concepts
  - Summary of concept screening against MOEs
- Two-question survey to solicit feedback
  - Rank the improvement concepts
  - Provide feedback regarding the project
  - Survey closed on June 4, 2018





# Community Outreach

- 98 unique responses (survey and feedback)
- Recurring and main concerns
  - Do not incentivize cut-through traffic
  - Improve safety above traffic flow
  - Upgrade pedestrian and bicycle facilities
  - Limit right-of-way impacts to neighboring properties



# Revised Improvement Concepts

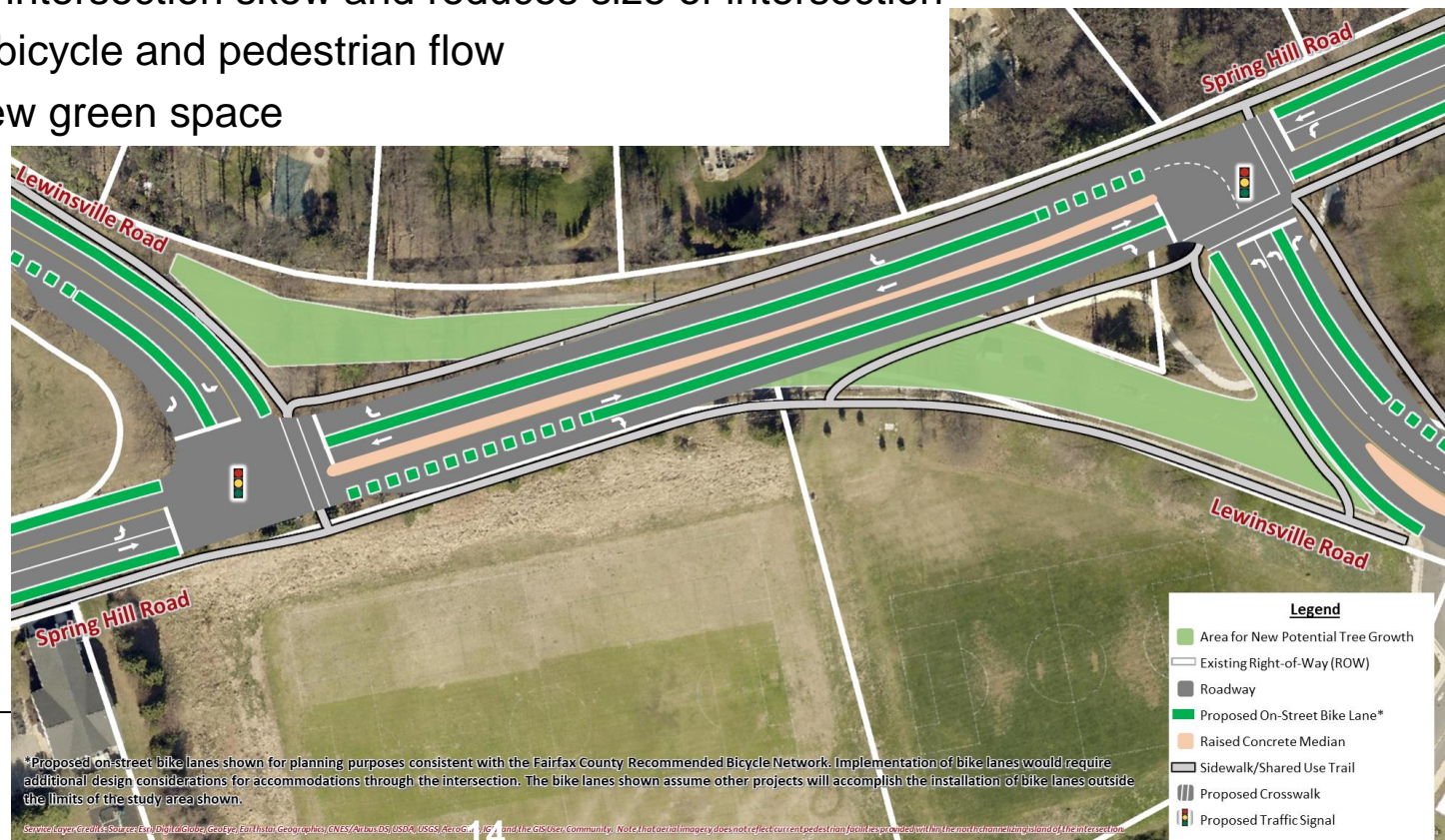
- Conventional Intersection
  - No change to existing travel patterns, enhancements to signal operations
  - Maintains intersection skew
  - Does not improve bicycle and pedestrian accommodations





# Revised Improvement Concepts

- Offset T-Intersection
  - Developed based on community feedback (May 2018)
  - Eliminates intersection skew and reduces size of intersection
  - Simplified bicycle and pedestrian flow
  - Creates new green space







# Revised Improvement Concepts

- Future (2040) traffic analysis of no-build and revised improvement concepts
- Congestion at the Dulles Toll Road impacts intersection operations
- Analysis considered two scenarios for the improvement concepts
  - One southbound travel lane on Spring Hill Road between Lewinsville Road and the Dulles Toll Road
  - Two southbound travel lanes on Spring Hill Road between Lewinsville Road and the Dulles Toll Road



# Measures of Effectiveness

MOE	No Build	Alternatives	
		Conventional Intersection	Offset T-Intersection
Operations	POOR	GOOD	GOOD
Right-of-Way	N/A	LOW	LOW
Constructability	N/A	MEDIUM	MEDIUM
Cost	N/A	MEDIUM	MEDIUM
Bicycle and Pedestrian Accommodations	POOR	FAIR	GOOD
Environmental Impact	N/A	LOW	MEDIUM
Safety Benefit (Vehicles)	LOW	LOW	HIGH
Safety Benefit (Bicycle and Pedestrian)	LOW	LOW	HIGH





# Revised Improvement Concepts

- Pros and cons to each of the concepts

	Pros	Cons
<b>Conventional Intersection</b>	<ul style="list-style-type: none"><li>• Reduced delay</li><li>• Limited queue impact</li><li>• Minimal change to existing</li></ul>	<ul style="list-style-type: none"><li>• Safety challenges remain</li><li>• Does not eliminate skew</li><li>• Challenging to improve bike/ped access</li></ul>
<b>Offset T-Intersection</b>	<ul style="list-style-type: none"><li>• Improved safety for all transportation users</li><li>• Simplified operations</li><li>• Conventional bike/ped access</li><li>• New green space</li></ul>	<ul style="list-style-type: none"><li>• Greater potential for right-of-way impacts to school and park properties</li></ul>





## Next Steps

- Solicit feedback on revised concepts through an online survey
- Recommend preferred alternative
- Advance to more detailed design



# Questions/Comments

- <https://www.fairfaxcounty.gov/transportation/study/spring-hill-lewinsville-road>
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