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The WILLIAM STATES LEE COLLEGE of ENGINEERING



Dual Left Flashing Yellow Arrow Feasibility Study

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Introduction

- Traditionally, protected phasing for dual left turn lanes are used
- Some cities have used permitted phasing for dual lefts for several years
- North Carolina has a few
- Flashing Yellow Arrows are used in NC



Tucson, AZ



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Tucson, AZ



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Research – Tucson

- Lagging lefts – eliminate yellow trap, can often skip protected phase
- Queue moves forward during permitted phase



Research – Tucson

- Protected-permitted dual left vs. protected-permitted single left – one more crash/approach/year
- Positive lane offsets are important for sight distance



Richardson, TX



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Signs with FYAs

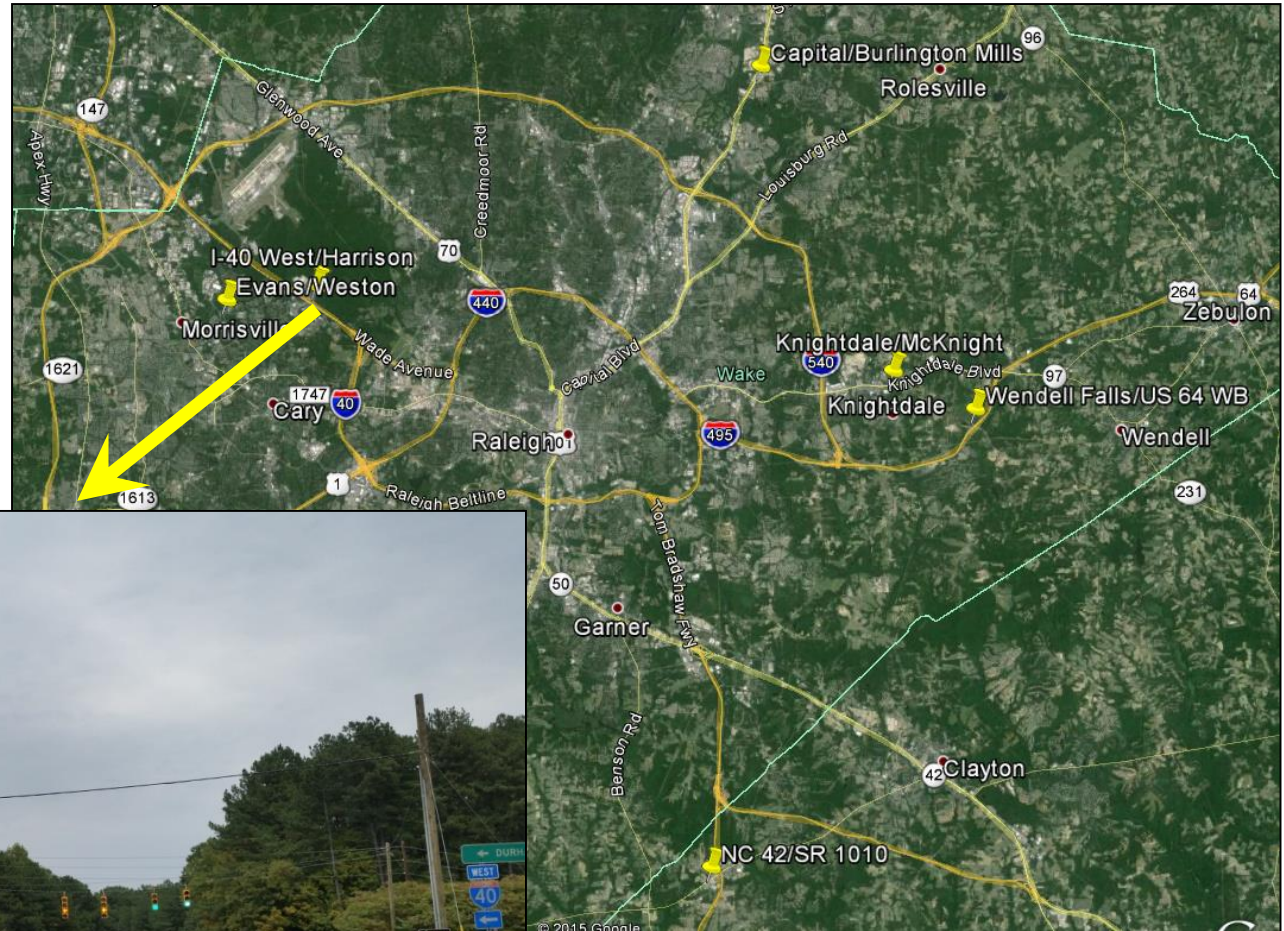


Factors to Consider

- **Sight distance**
- Speed limit
- Opposing volume
- Number of opposing lanes
- Pedestrians/bicyclists
- Curvature and grade (for sight distance)

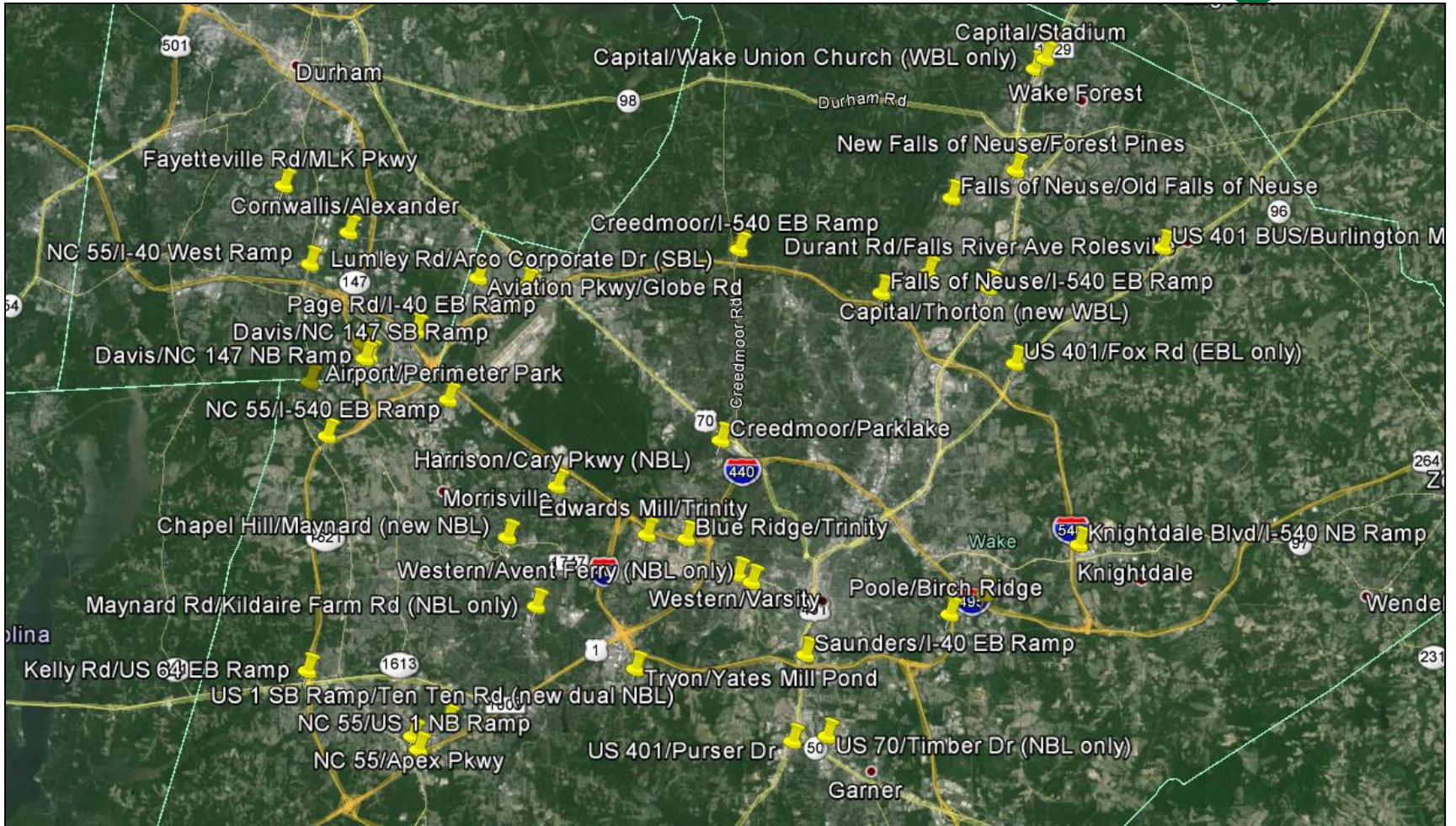


Dual Left FYA in NC



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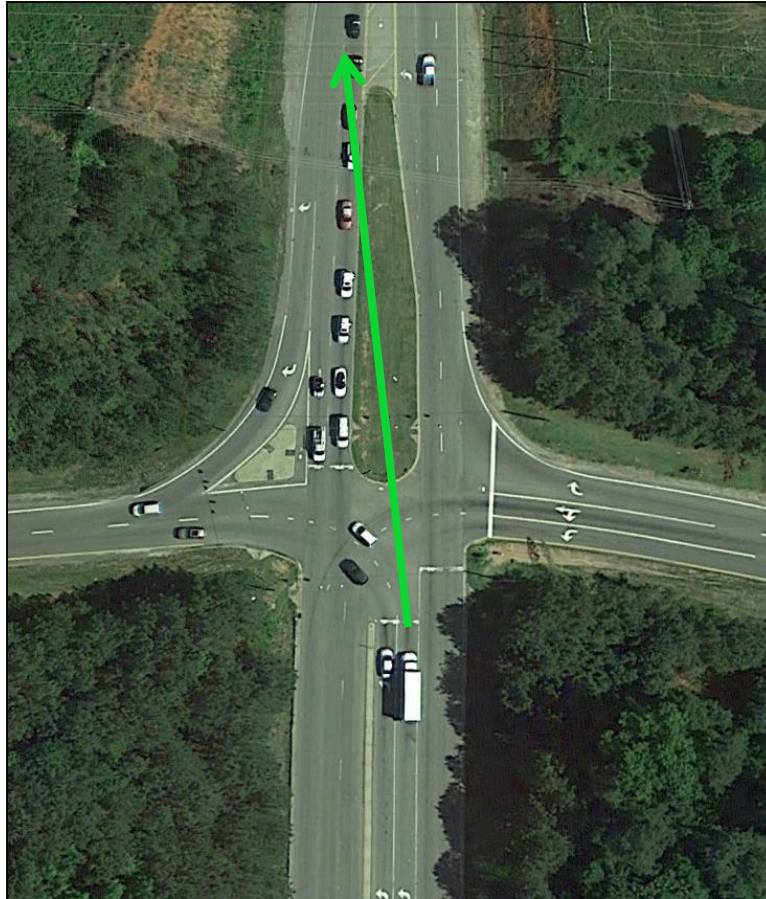
Potential Locations – Triangle



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Diamond Interchanges

I-540 at Creedmoor Rd

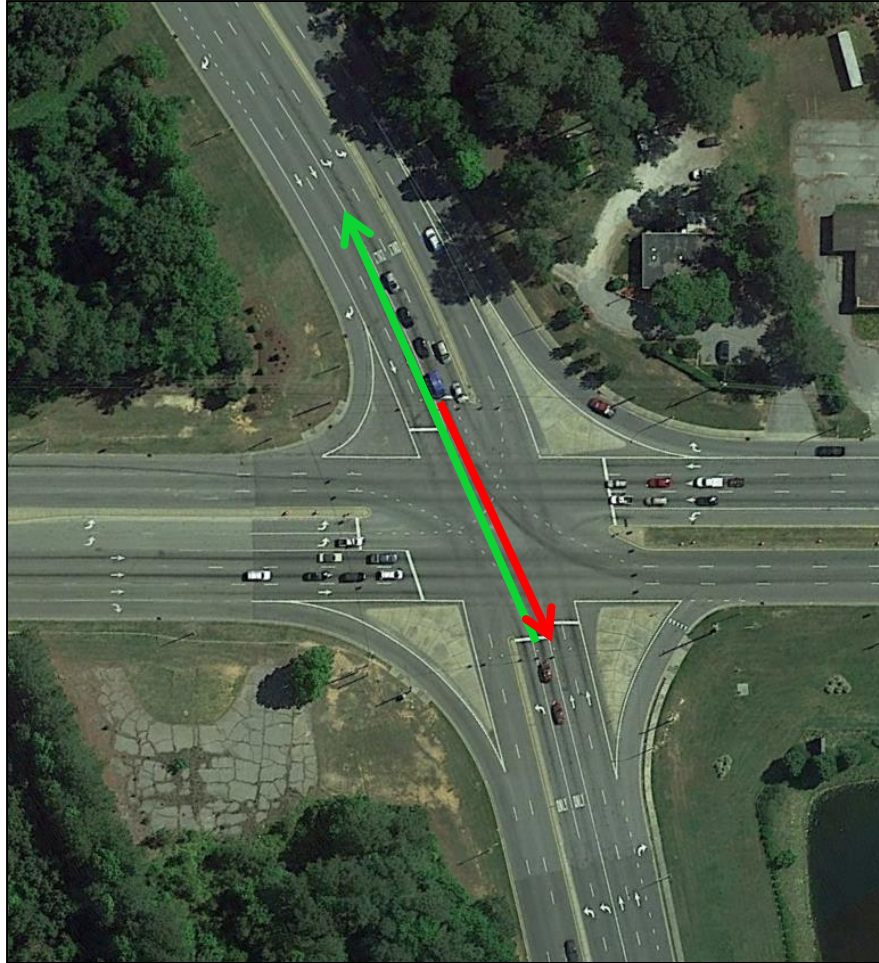


No opposing left
turn – typically
good sight
distance.



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US 70 at Timber Dr - Garner

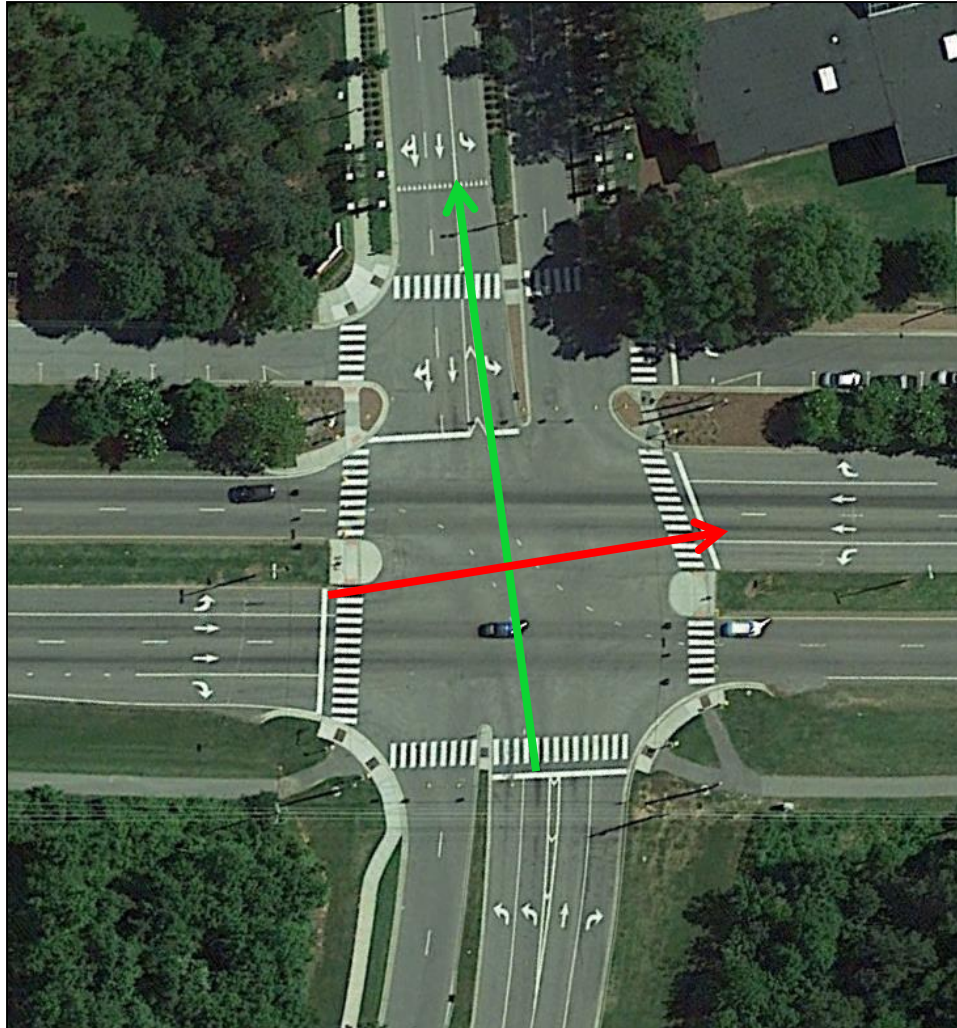


Curvature of road only allows for NBL to have adequate sight distance.



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Western Blvd at Varsity Dr - NCSU

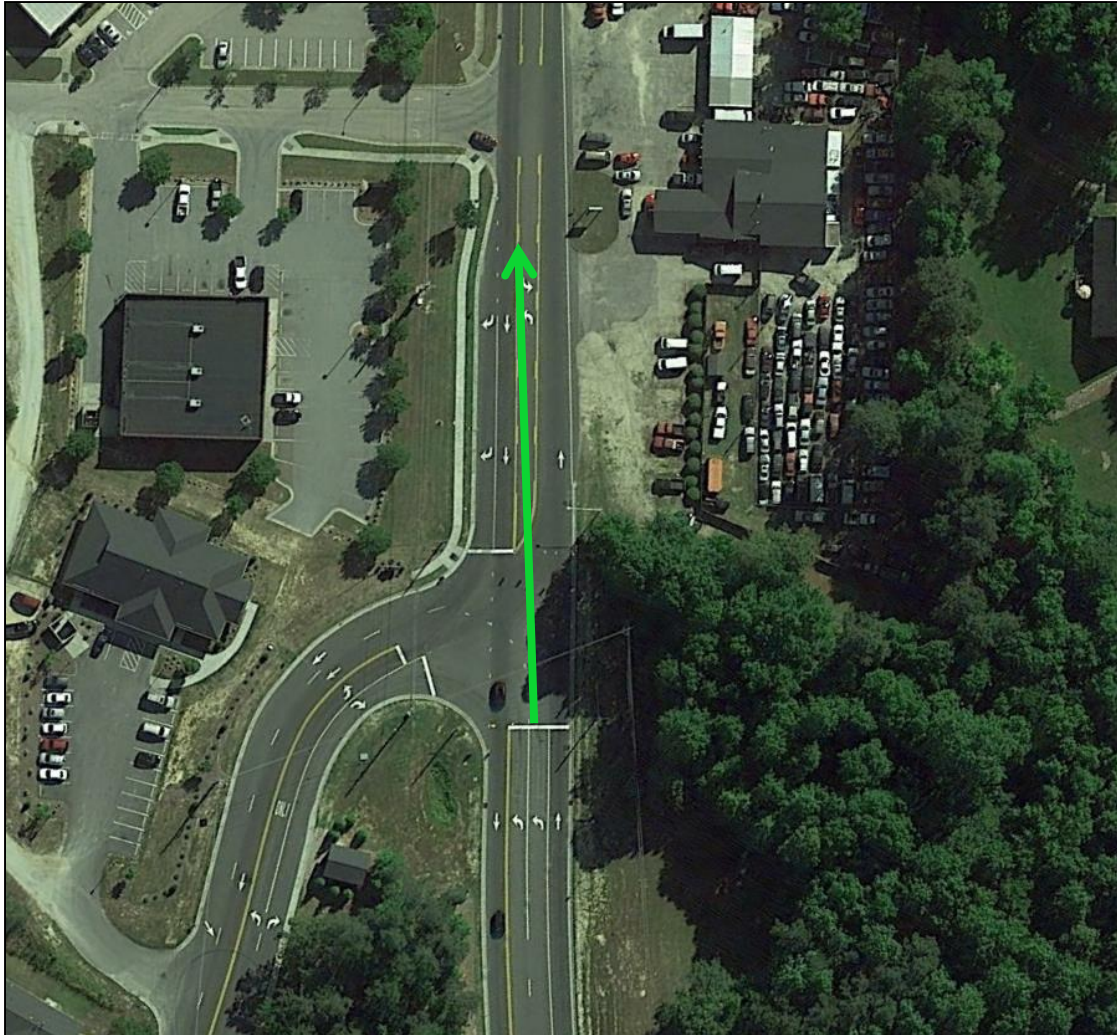


Small offsets provide sight distance.
Interesting to note, EBL and WBL are protected-permitted.



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US 401 BUS at Burlington Mills Rd - Rolesville



T-intersections
are like diamond
interchange
intersections, no
opposing left.



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New Falls of Neuse Rd at Forest Pines Dr – Wakefield

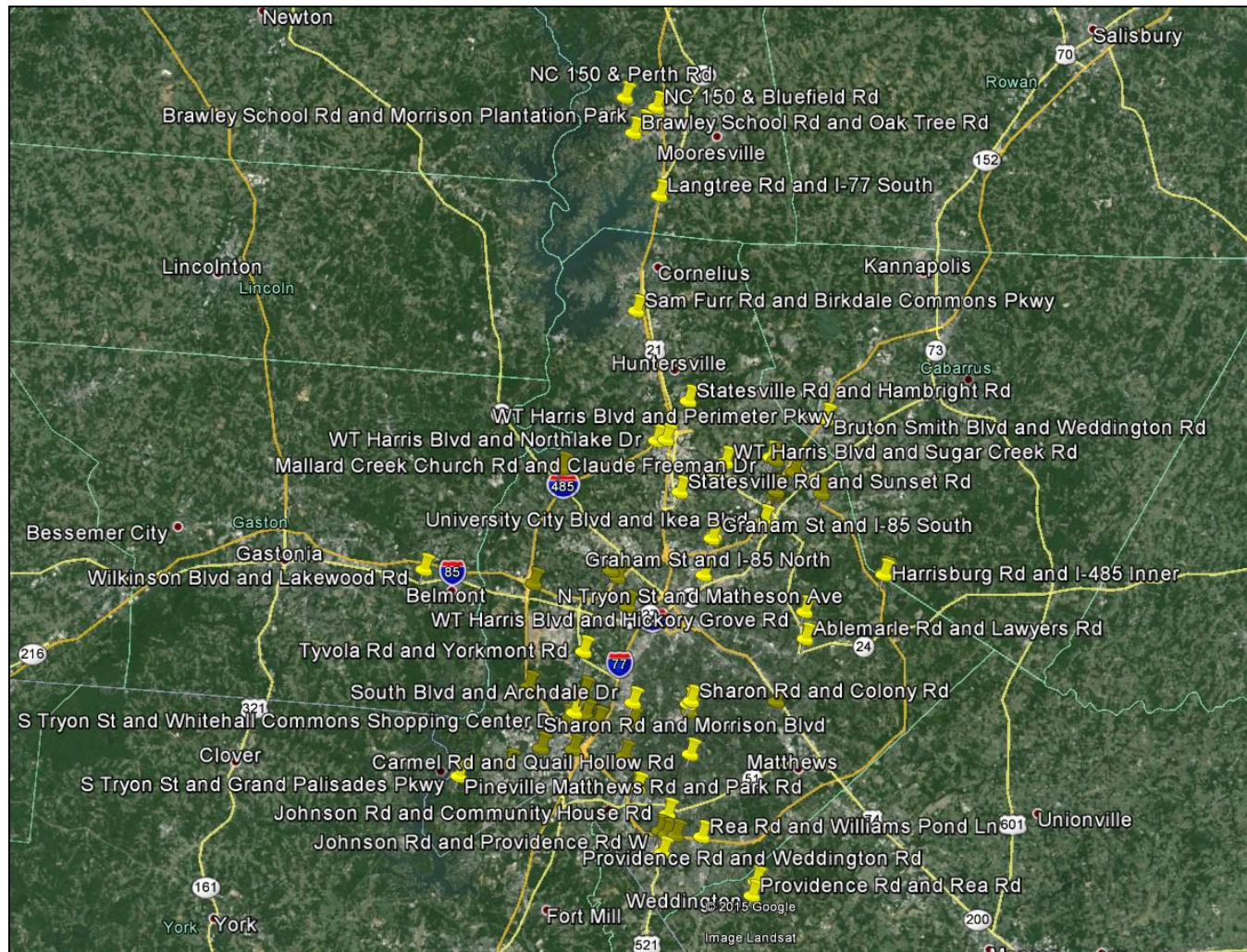


Side street dual lefts, skip protected phase, more green time for main road.



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Potential Locations – Charlotte



Next Steps

- Send report to engineers at NCDOT, others as needed
- KMZ files available upon request
- NCDOT - Continue to evaluate intersections, install where appropriate



Thank you for your attention.

Questions?

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