



**NORTH CAROLINA**

Department of Transportation



# Updates on DLTi – Dynamic Left Turn intersections

For RTA Innovations and Solutions Forum

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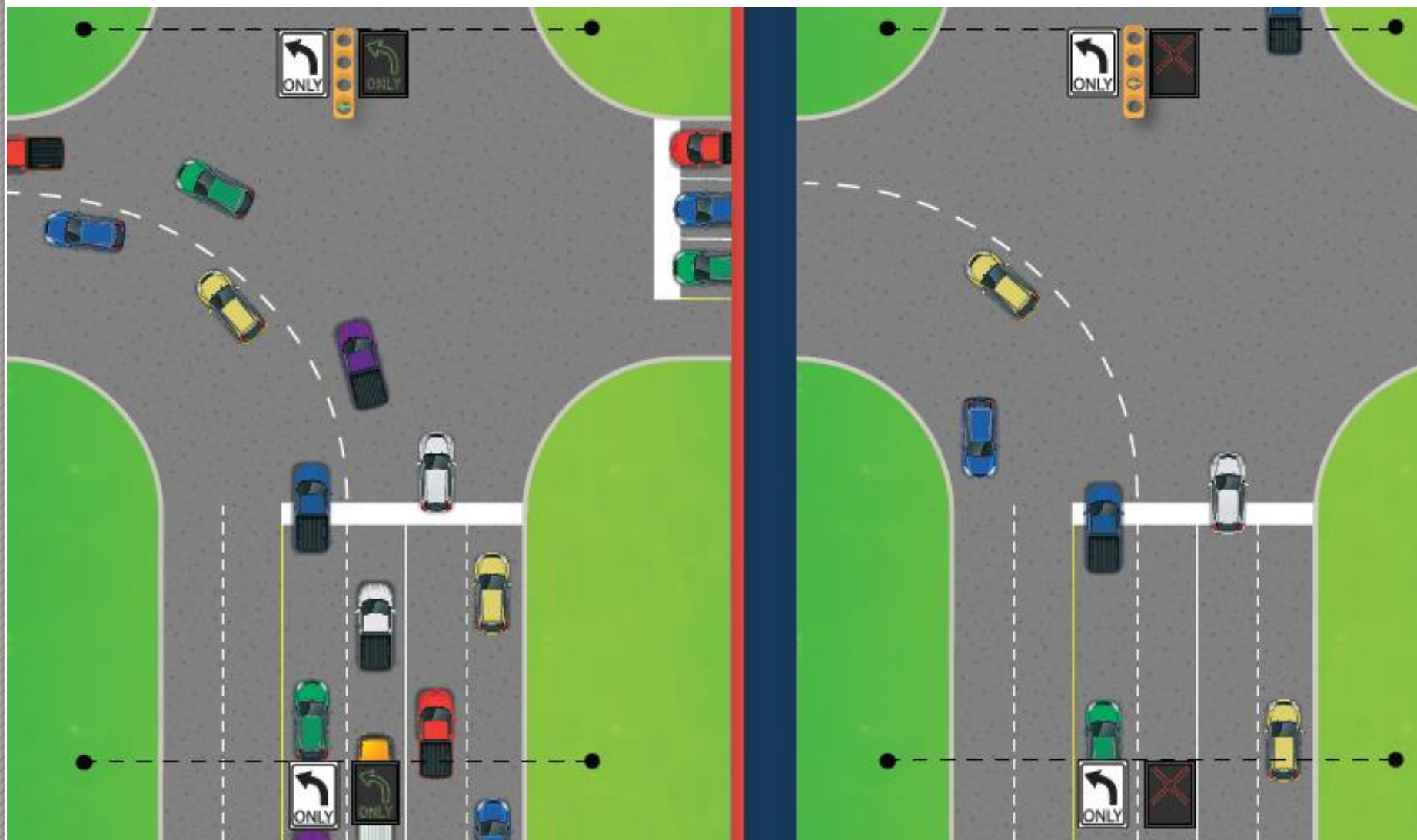
# Problem



# Potential Solution--DLTi

## Peak

## Off-Peak





# Dynamic Left Turn Intersection

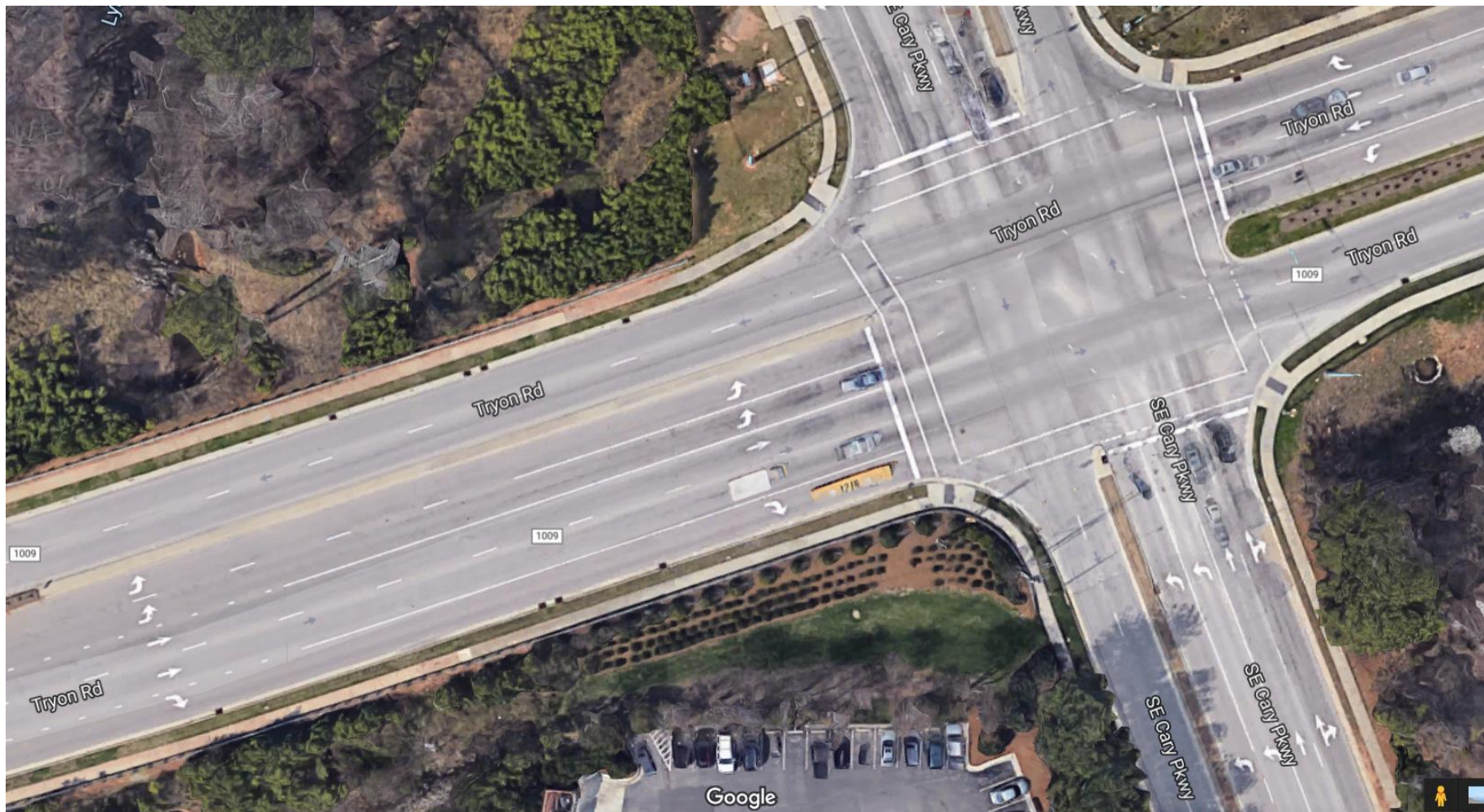
- Operate as dual left turn lane during peak
  - Protected (green arrow) left turn signal
- Close second lane during off-peak
  - Operate as single left turn lane
  - Protected/permitted (flashing yellow arrow) left turn signal
  - Positive offset left turn
- Use lane control signs
  - Like on Edwards Mill Road near PNC Arena



# Site Selection Criteria

- Dual left turn lane
- Goldilocks demand
  - Enough demand to matter
  - Do not need dual left turn lanes off-peak
- Plentiful sight distance
  - Could have been permitted left turn
- Compatible signal software

# Tryon at Cary Parkway, Cary



# Estimated Benefits

Dimension	Tryon Road
Left turns in DLTi lanes/day	3,200
Left turns in DLTi lanes, % of total demand	7
Hours/day operated with DLTi	15
Left turn delay savings, sec/veh	7
All vehicle delay savings, sec/veh	0.4
All vehicle delay savings, veh-hr/year	2,100
Delay savings benefit, \$/year	27,000
Installation cost, \$	33,000



# Current Status

- Operational February 14, 2020
  - 20 hours per day
- PR campaign
- Changeable message sign
- Additional work so Cary cameras can view





# Compliance and Reaction

- Some negative public reaction
- Leaders have held steady
- Based on several informal observations, we think we are getting about 80 percent compliance on average



# Clueless?



# That-a-way!





# Lessons Learned Already

- Need to clearly convey expected benefit
- Need to add sign explaining **X**
- Heavy demand on right side just after DLTi
- Trucks “trapped” in left lane
- What is target compliance level?

# Down the Road

- After study to be completed asap
- Potential second site, US-70 Business at Walmart in Clayton
- If reasonable cost, maintenance needs, safety impact, public reaction, ...
- Publish our findings for other states
- Look for other sites statewide
  - Build into TIP projects
  - Retrofit with Spot Mobility funds
- Think about other time-of-day innovations

# Thank You!

- Joe Milazzo and RTA
  - Had the idea, cleared devices with FHWA, gently pushed
- NCDOT Board and management
  - Fostering a culture of innovation
- Town of Cary, Division 5, Division 4
- Many professionals trying to help



# Thank You!

- Let's go fix some intersections and interchanges
- Joe Hummer
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