

Jamestown Traffic Analysis

High Point Urban Area MPO TAC Presentation

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Tommy Pate, PE - Martin/Alexiou/Bryson, PC

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Intro Lyle and Tommy

Thank the Town and Chuck for the opportunity for the study

Brief MAB history:

Raleigh firm that specializes in Transportation Engineering and Planning

Presentation Overview

- Background
- Existing Roadway Network
- Existing Issues
- Future Jamestown Bypass
- LOS Results
- Recommended Improvements
 - Roads/Intersections
 - Schools

Background: First met to scope the project in July 2011 with Town, MPO and NCDOT staff

*Then will discuss existing conditions based on collected traffic and accident data
Followed by projected future conditions and where problems may be experienced with
and without the Bypass construction, U-2412 A/B*

Finally, will go over our recommended improvements for the study area network.

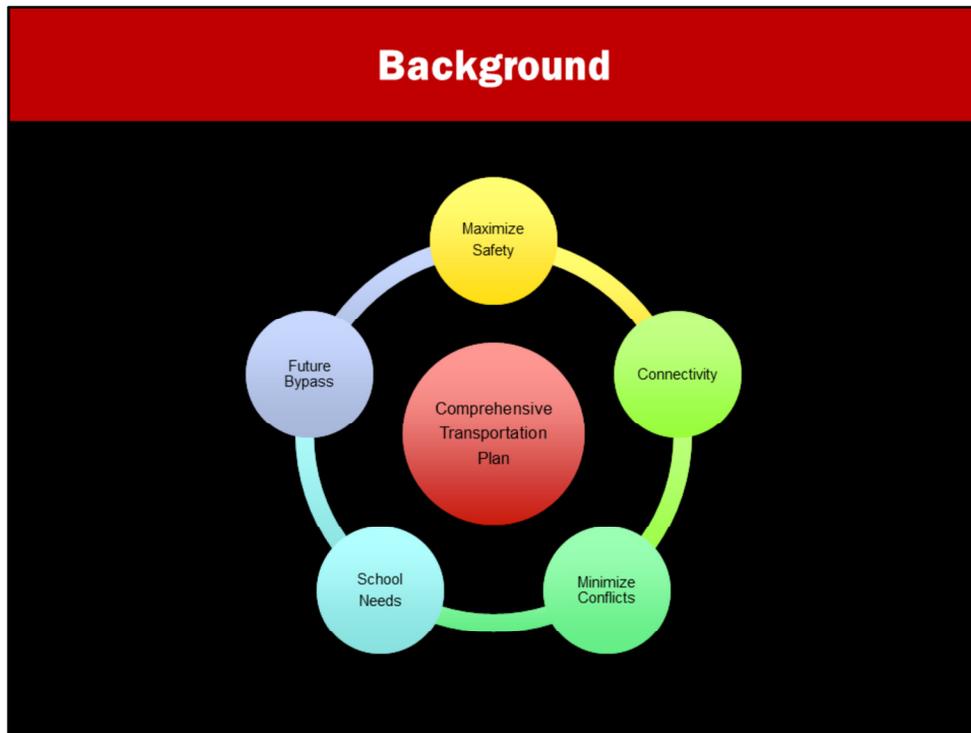


Diagram to illustrate the objective of the study, by taking a look at how traffic conditions may be in the future with changes to the schools in the area and also the effect of the Bypass when it is partially built and then ultimately fully completed.

Existing Roadway Network



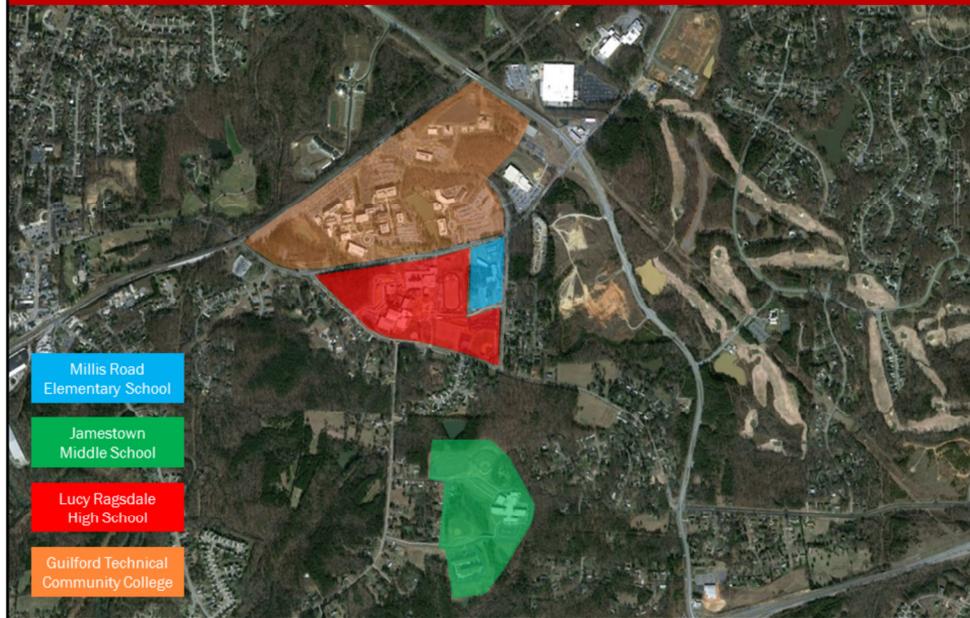
Highlighted roadways that we studied

Estimated 2011 ADTs

Location	Estimated 2011 AADT (vpd)
High Point Road, east of Bonner Drive/Vickrey Chapel Road	10,700
High Point Road, east of Bonner Drive/Millis Road	15,500
Vickrey Chapel Road, east of Millis Road	6,000
Vickrey Chapel Road, south/east of High Point Road	4,900
Guilford College Road, north of High Point Road	9,800
Guilford College Road, south of High Point Road	6,900
Millis Road, between High Point Road and Vickrey Chapel Road	5,100
Rochelle Drive, north of High Point Road	1,900
Harvey Road, south of Vickrey Chapel Road	3,500

Derived daily counts from the study, Average Annual Daily Traffic (AADT). Shows continued traffic growth, therefore should expect worsening traffic into the future. So, a good time to perform a study as traffic increases.

Area Schools



Millis Road Elementary (Pre-K thru 5th) – Built in 1961 with a max student population of 560. Since then the school has added capacity with 8 mobile classrooms, and currently has a student population of 515. Has had school populations in the 750 range in the past.

Lucy Ragsdale HS (9th – 12th) – Built in 1959 with a max student population of 1,400 students. Currently undergoing renovations to buildings, parking lots and driveways – will have a maximum student population of 1,600 and an independent artistic student wing (100 students)

Jamestown Middle School (6-9) – 1,120 students, good layout, could use turn lanes on Harvey Road though.

Sidewalks and Transit



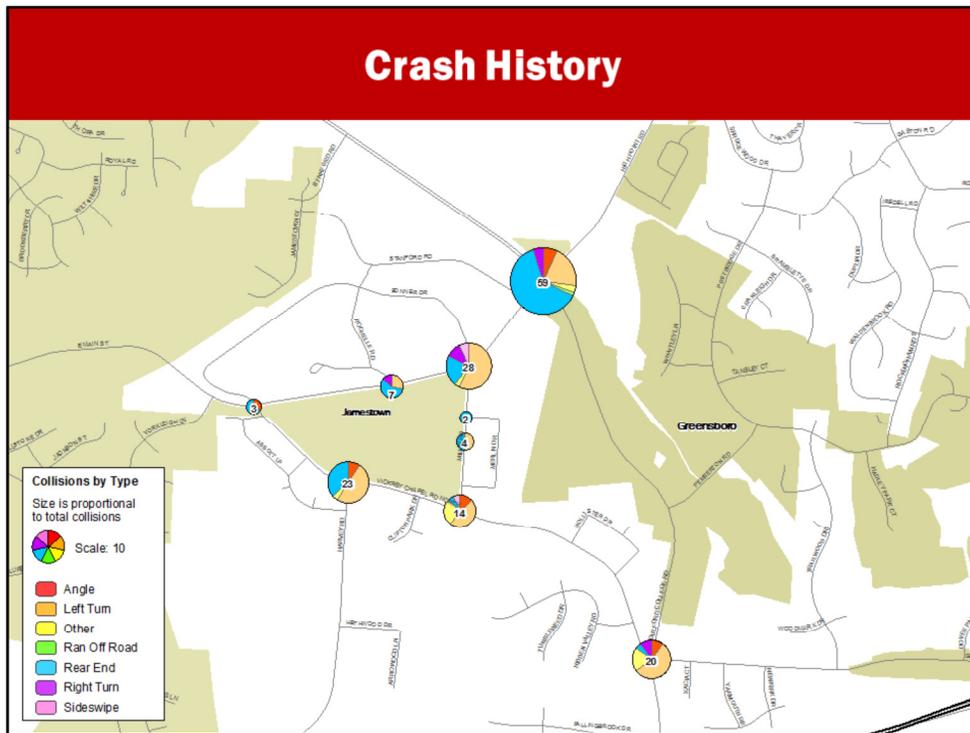
Not many sidewalks currently in the study area, just north of Vickrey Chapel Road and along Guilford College Road. Only one transit route along High Point Road.

Proposed Sidewalk Network



Town of Jamestown Comprehensive Pedestrian Plan (May 2010) identifies several short and long term goals. Very good document and we agreed with recommendations in the report.

The ones that overlap our study area are shown in green and are recommended in the study.



3-yr period, April 1, 2009 – March 31, 2012

177 total crashes - majority being re-end and left-turn crashes, which make up approximately 75%.

Approximately 82% during the day, approximately 83% with dry roadway conditions. As expected with greater exposure during the daylight hours.

No fatal or Type A injury crashes, which is good.

Note rear ends at GCR and HPR, while left-turn and angles are more prevalent at VCR and both ends of Millis

Known Issues: Sight Distance



*Crest along High Point, between Montgomery and Rochelle.
Horizontal curve along Vickery Chapel Road east of Millis.*

Known Issues: Millis Road Elementary School



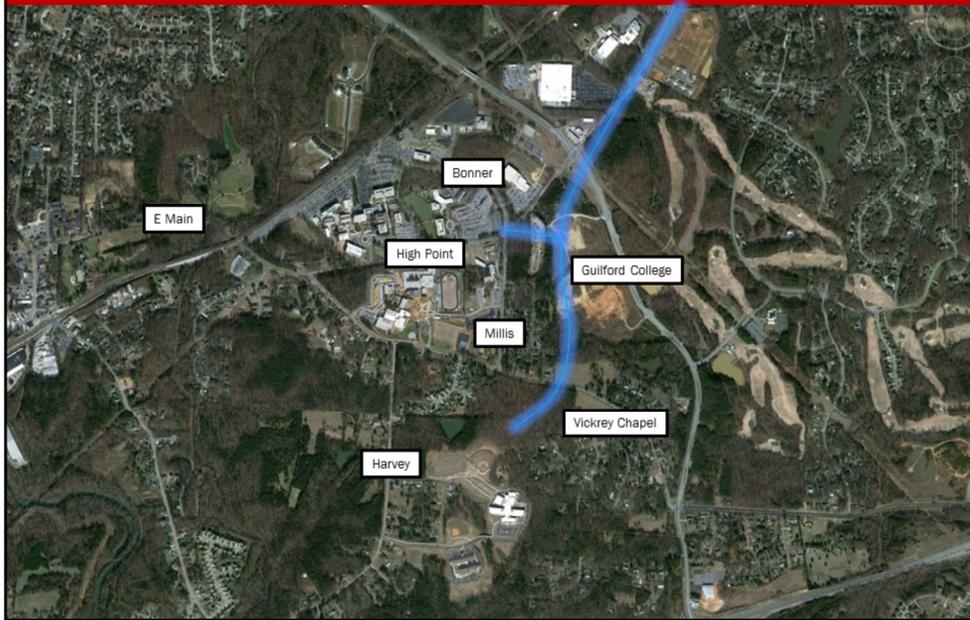
Millis Road experiences quite a bit of congestion and is to worsen in future. Highlighted are a couple observed issues.

Known Issues: Lucy Ragsdale High School



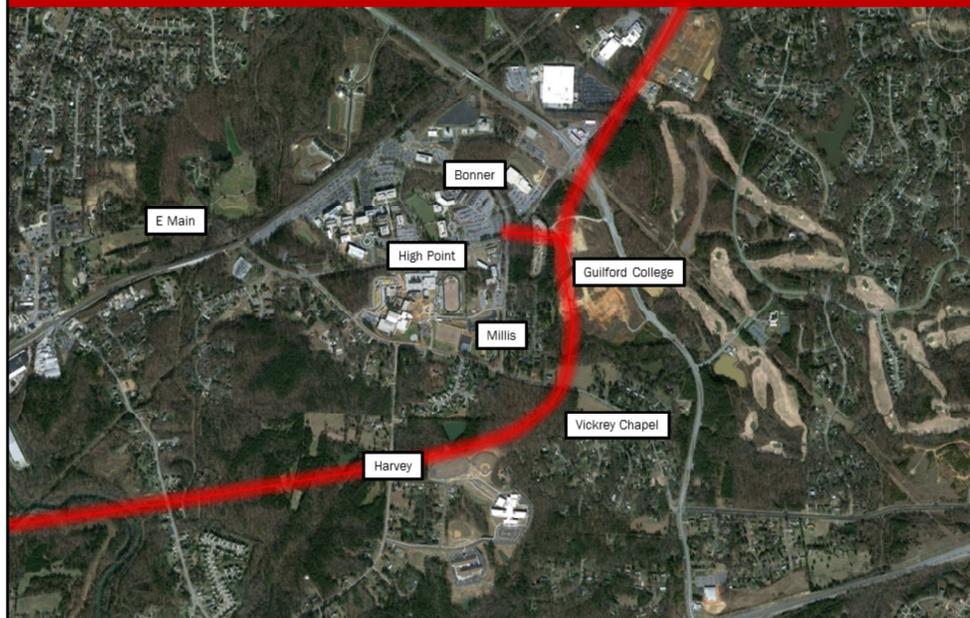
*Some issues here along High Point Road.
Not as severe as along Millis.*

Jamestown Bypass – Phase 1



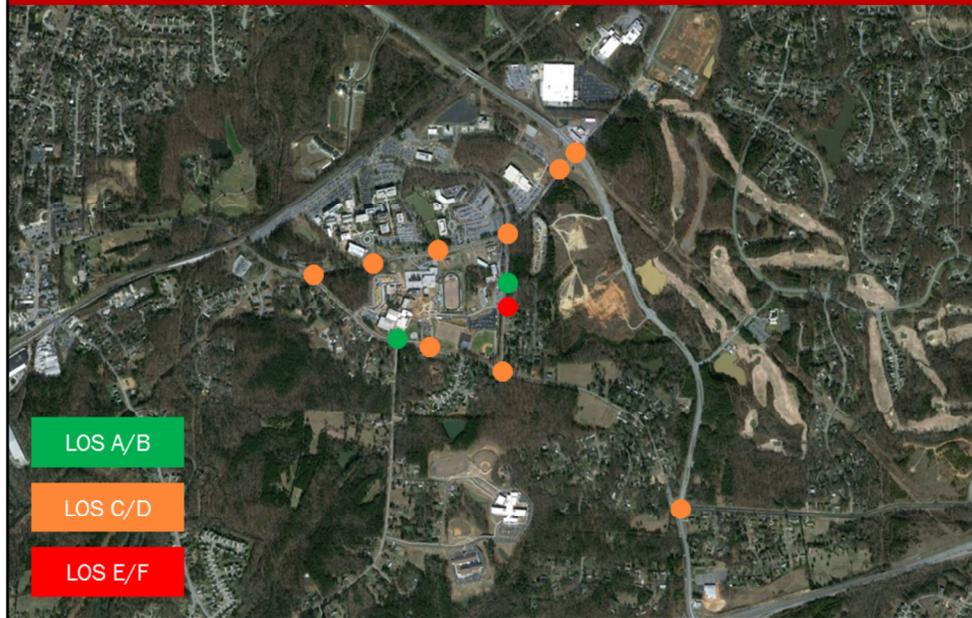
Phase 1 of the Bypass is to terminate to the southwest of Vickery Chapel Road. It will also realign High Point Road into it as shown and close/abandon Stanford Road. Vehicles will chose either path to access the Bypass in the interim years. Heavy right-turn will still occur at High Point Road and the Bypass now.

Jamestown Bypass - Phase 2



Phase 2 will provide a good alternate route and should divert a lot of through traffic away from the study area network.

Existing (2011) LOS



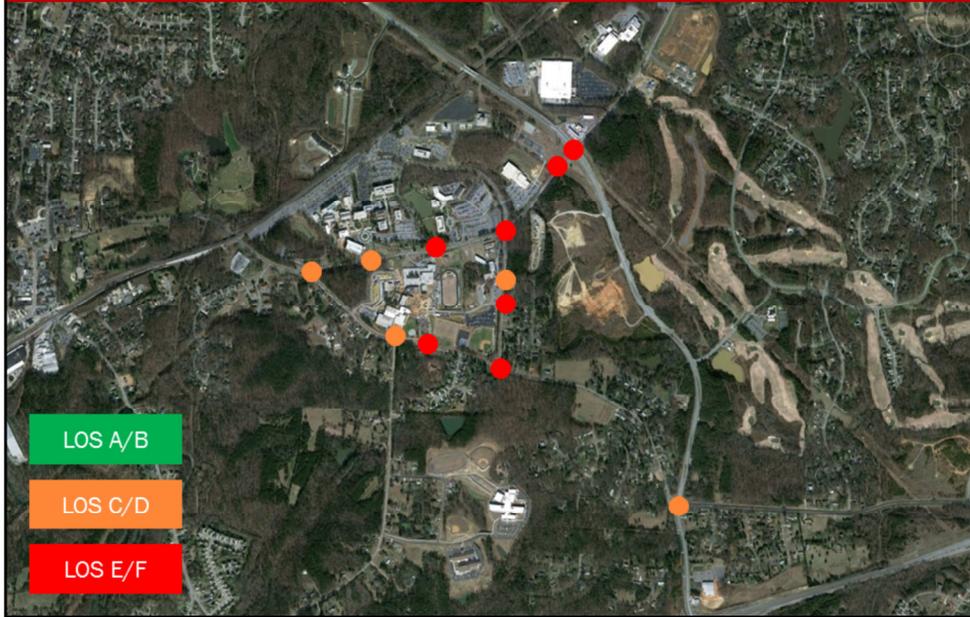
Analysis based on 12-hour turning movement counts from November 2011. Analyzed 3 peaks, AM, School, PM.

Review LOS terminology, not different for signals and unsignalized locations.

Existing 2011 Conditions, not too bad some moderate congestion.

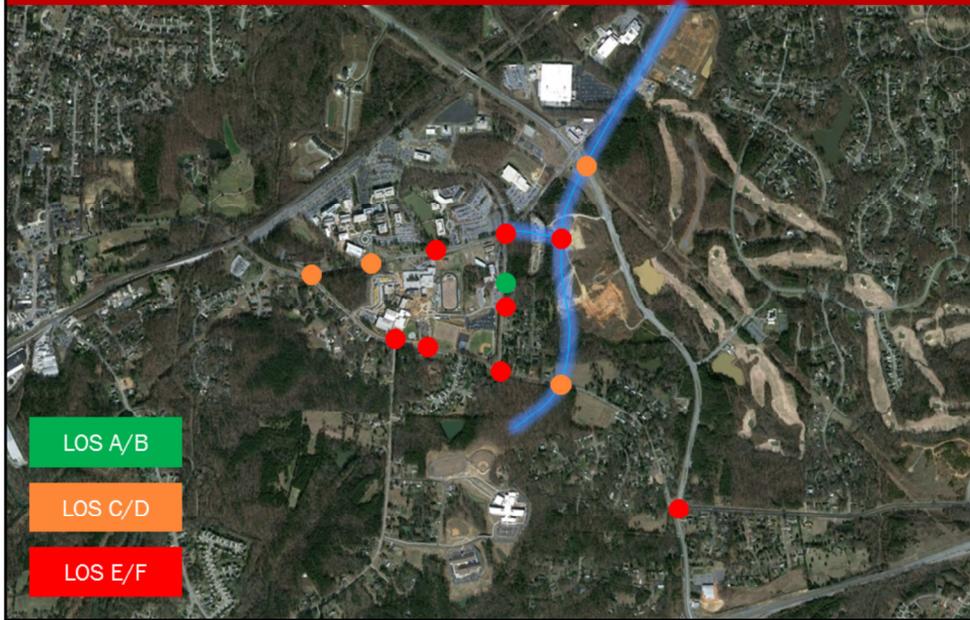
LOS BASED ON THE WORST OF THE 3 PEAKS!

Background (2016) LOS



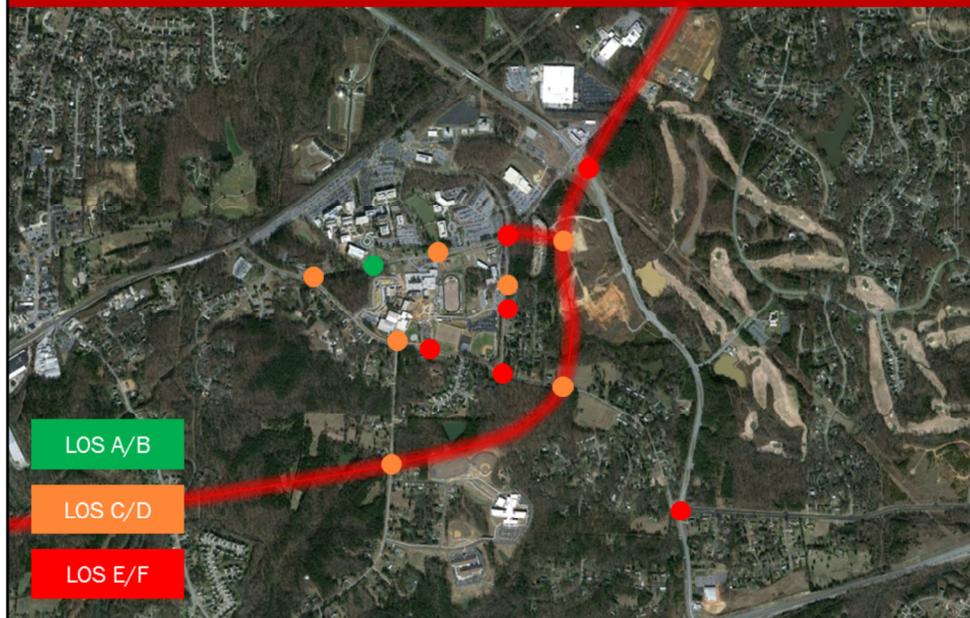
2% growth rate for most roadways. 4% at intersections serving GTCC campus (due to Master Plan), 0% at Millis Road Elementary, as it is at full capacity. Background does not account for Jamestown Bypass, shift, diversions, or any background projects/developments.

Phase 1 Build (2016) LOS



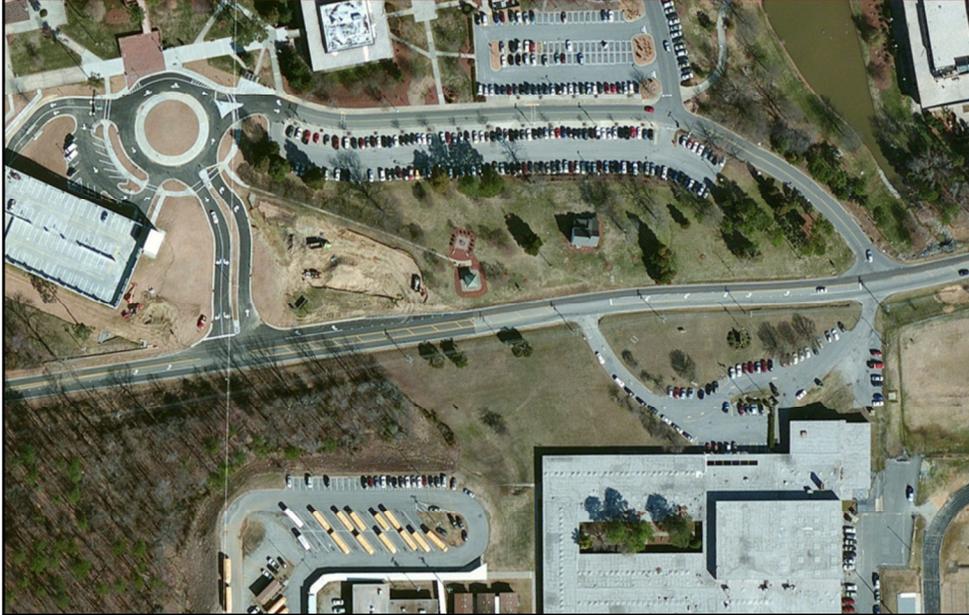
Toughest part of this study was to take complete forecasts from NCDOT and make the existing volumes with background growth “fit”. Bypass is forecasted to attract more vehicles and with it terminating just west of Vickery Chapel, we’re forecasting increased congestion especially along that route. Feel these results are pretty conservative, but regardless are not much different when compared with not building the Bypass at all (Background), so either way will most likely have traffic congestion issues in the future.

Phase 2 Build (2021) LOS



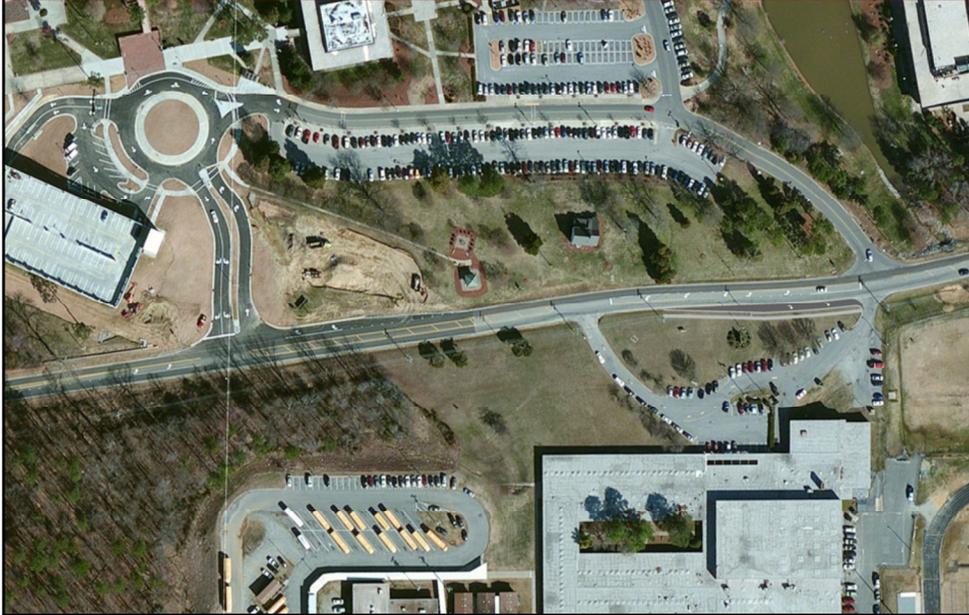
Things do improve in 2021 now that the Bypass is complete and diverts traffic away from the study area.

**High Point Road/GTCC Main Entrance
High Point Road/Rochelle Drive**



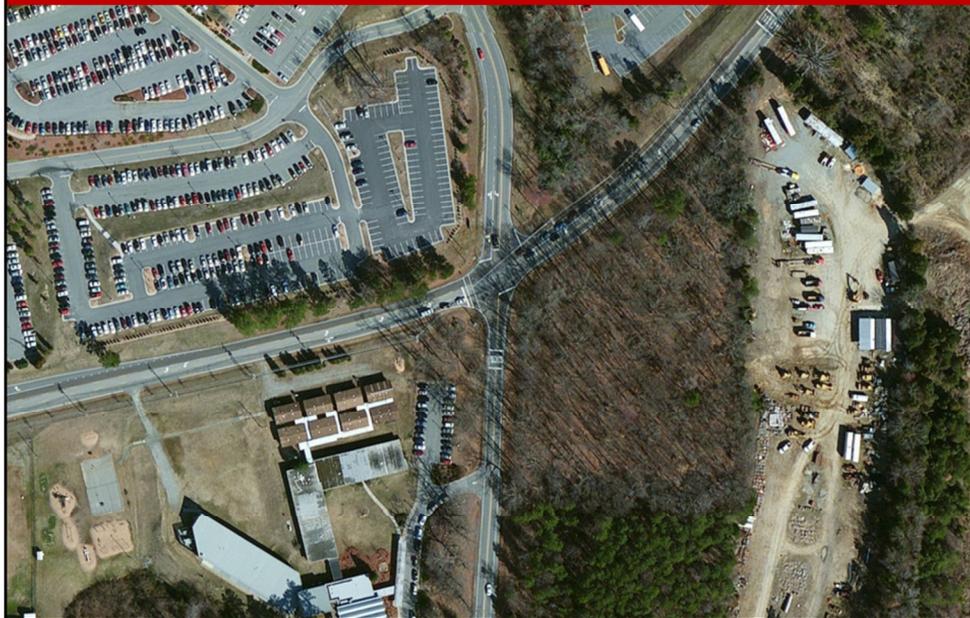
*Construct exclusive EBR lane along High Point Road that provides at least 150 feet of full storage with an appropriate taper.
Still LOS E (SB) in Improved (2016) – okay in Improved (2021)
May want to consider making Rochelle RIRO, sending traffic to the roundabout out their main driveway.*

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High Point Road/Millis Road



Restripe the SB Bonner Drive lane to provide for one ingress lane and two egress lanes (SBL, SBT/R)

Construct an exclusive NBR that provides at least 200 feet of full storage with an appropriate taper

Modify signal phasing

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**Vickrey Chapel Road/Harvey Road
Vickrey Chapel Road/High School Access**



Construct an exclusive EBR along Vickrey Chapel Road that provides at least 100 feet of full storage with an appropriate taper

Construct an exclusive NBR along Harvey Road that provides at least 150 feet of full storage with an appropriate taper

Restripe the WB approach to include a WBL (TWLTL)

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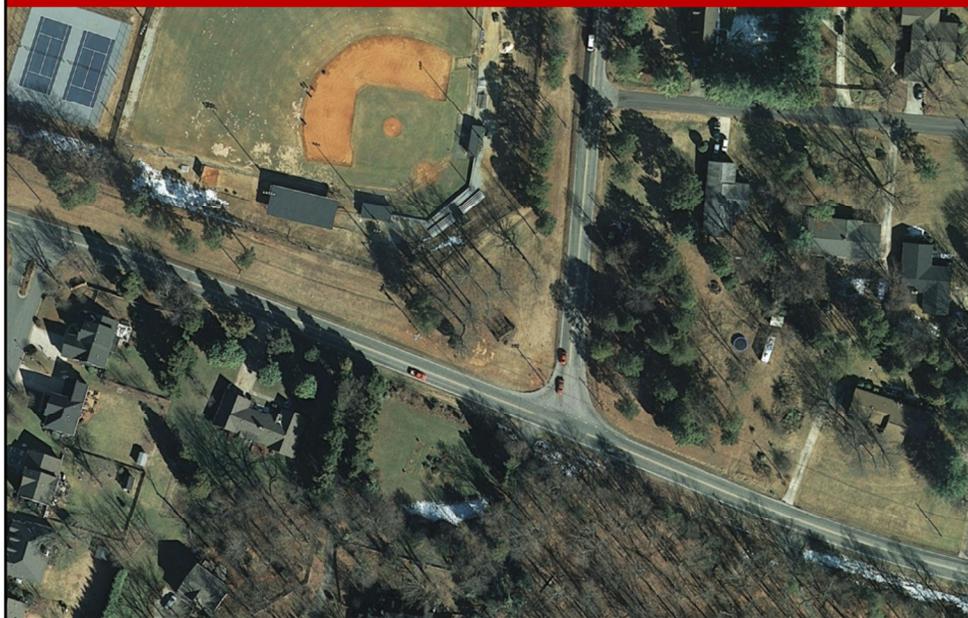
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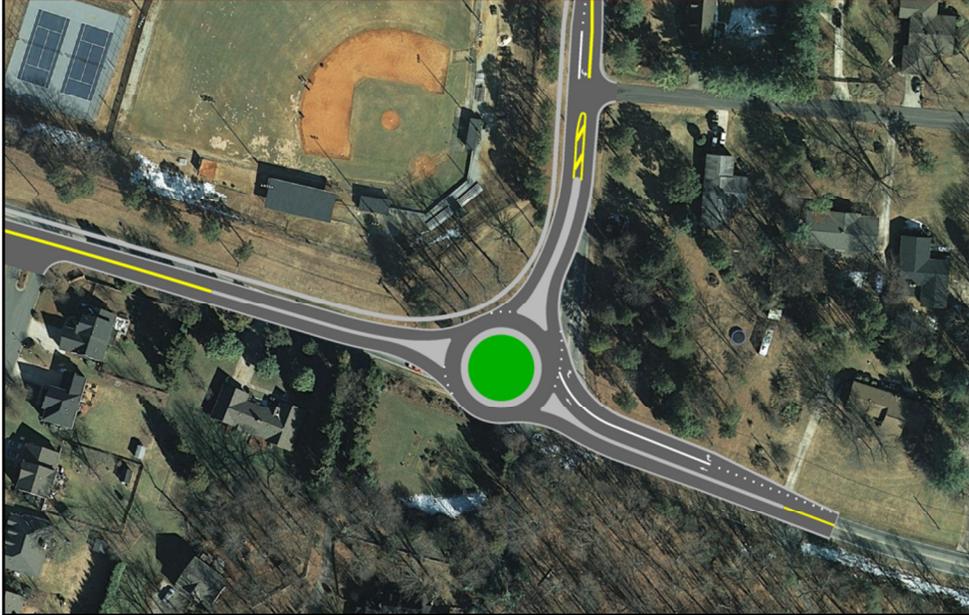


Construct a roundabout

We're still tweaking the WB approach, may add short right-turn lane to shorten the queue, as the Bypass signal is less than 1,000 feet away in the future.

The roundabout should serve as a good gateway into the study area and calm traffic coming from the Bypass.

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Vickrey Chapel Road/Guilford College



Restripe EB approach to provide for a shared thru/left-turn lane and exclusive right-turn lane.

Stripe out the SB outside left-turn lane to provide offset left-turn lanes with coupling NB left-turn lane. Should improve safety and allow for more visibility for left-turning vehicles.

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Millis Road



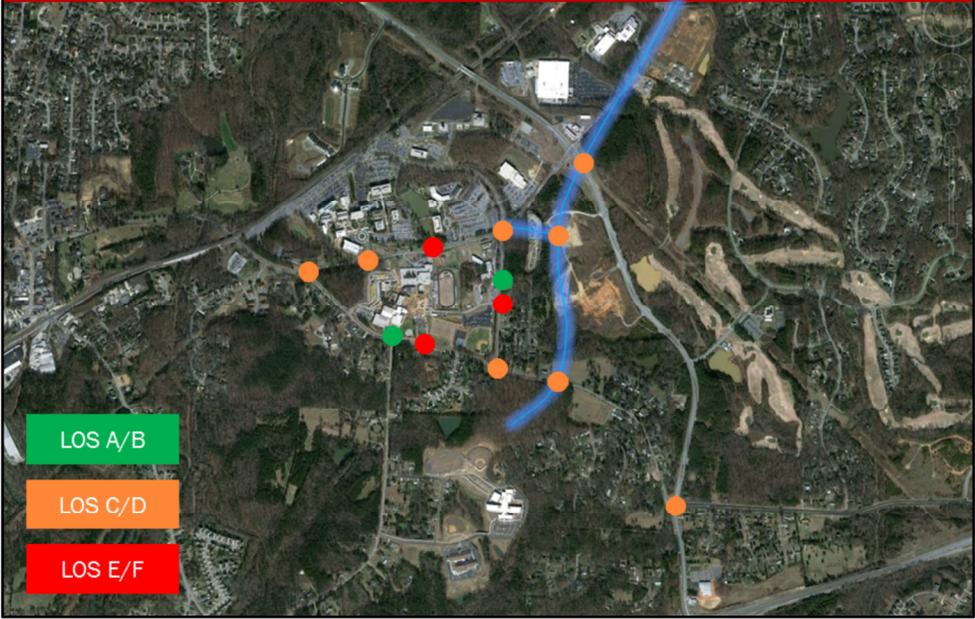
*Additional turn lanes SB and NB on Millis.
Modify carpool traffic pattern.*

Millis Road



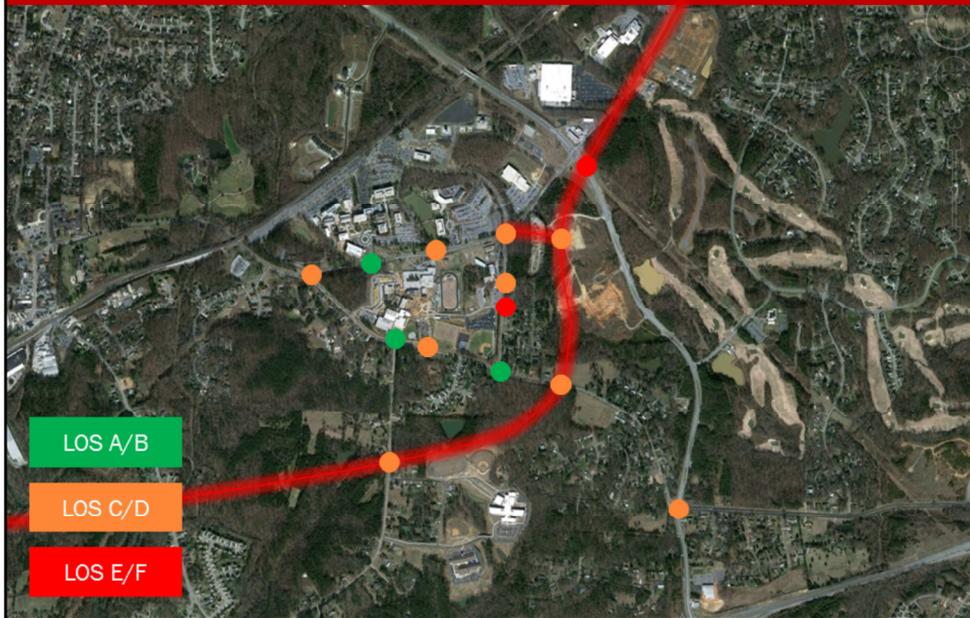
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Modify carpool traffic pattern.*

Phase 1 Improved (2016) LOS



Mainly red locations are where a traffic director may be needed during school peak hours.

Phase 2 Improved (2021) LOS



With diverted traffic to the Bypass, many locations improve even with 2021 traffic volumes and growth.

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QUESTIONS?

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Total Cost \$1.3 - \$1.5 Million, still tweaking number.

Diversion Steps

- (1) Create cut lines at same location across scenarios: Existing, NoBuild, 2000 Forecast and 2006 Forecast*
- (2) Used 2000 Forecast to compare ADT @ A-A, C-C, E-E (different spots along HP) to come up with some sort of diversion factor/ratio/rate*
- (3) Calculated an ADT that would use the Bypass (~5K taken from High Point)*
- (4) Applied the diversion ratio to the Bypass ADT*

BAOHONGS 6/28/2012 EMAIL