



TECHNICAL MEMORANDUM

To: Clyde Wallace VDOT
From: Tushar Awar
Erin Steel
Date: August 14, 2017
Subject: Response to VDOT Comments – LCPS HS-9 (1st Submission), Loudoun County Plan Number: CMPT-2017-0001
RUID #23024

Introduction

This memorandum addresses the comments received for LCPS HS-9 Traffic Impact Study (1st Submission), Loudoun County Plan Number CMPT-2017-0001 in Loudoun County, Virginia. Each comment is presented in *italics* with the response in **bold** immediately following.

COMMENTS:

1. *Scoping document is agreed upon in May 2017. Any reason the study uses existing year as 2016? The existing year should be changed from year 2016 to year 2017 throughout the report?*

The existing counts were performed in late 2016 and are not more than a year old. However, as discussed with VDOT reviewer at the meeting held on July 31, 2017, the existing year has been revised to 2017 to match the scoping meeting date and discussion. Please see revised study.

2. *There is no plan at an engineering scale of the existing and a proposed site use included with the package.*

Comment noted. Please see revised submission package. Please note that the site plan submission has not occurred and this is a conceptual only plan.

3. *Provide North Arrow in all the Figures in the report.*

Comment noted. Please see revised study.

4. *As per County scoping document no additional inherent growth was applied to the study roadway. We suggest verifying with VDOT Transportation Planning section for their concurrence regarding this assumption of no additional inherent growth.*

We contacted VDOT Transportation Planning (TP) staff to review the background volume methodology and assumptions used in the study (such as existing rerouted volumes and growth). The methodology was found acceptable with the exception of adding 1% per year inherent growth along Braddock Road. The study has been revised to include a 1% per year growth rate along Braddock Road. Note that, per Comment #1, existing conditions year was changed to 2017, but since the existing counts were performed in 2016, 4 years of inherent

growth was applied for future 2020 conditions and 7 years of inherent growth was applied for future 2023 conditions. The email correspondence with VDOT TP staff is attached to this memorandum.

5. *At the Braddock Road/Grassland Drive/Trailhead Drive intersection; a signal and roundabout are assumed for the future without development (year 2020). Are these mentioned improvement proffered or planned by year 2020? These details should be included in the report. Also, if these back ground improvements are not proffered and/or programmed by year 2020 than;*
 - a. *The report should analyze Future year 2020 with proposed development without above mentioned improvements.*
 - b. *A comparison of Level of service and 95th percentile queue should be provided without above assumed improvements for future year 2020 without development Vs with development.*
 - c. *Please note that it is just one approach (SB approach only) that has LOS E and there is lots of assumption including rerouting, trip distribution etc. and it is likely that SB approach might operate at acceptable LOS without proposed development. With that said, what will be the mitigation measures considered by development to bring the LOS/queues to the future background conditions without above improvements (that are not programmed/planned/proffered).*

No improvements are funded or proffered at the intersection of Braddock Road/Grassland Grove Drive/Trailhead Drive at this time. Per the reviewer's request, the future conditions (2020 and 2023) with proposed development was evaluated without the recommended improvements under background conditions. Please see Table 8 (page 43) for 2020 analysis and please see Table 12 (page 69) for 2023 conditions.

Please note that Loudoun County has a level of service (LOS) policy that calls for LOS D or better by approach at all study intersections. The intersection has a failing level of service (SB approach has LOS E) under background conditions 2020 and the recommended improvements are required under background conditions for the intersection to meet acceptable LOS conditions. With the school generated traffic added to the intersection, the LOS further degrades, however the need for mitigation measures is triggered by existing + background traffic. Even a small increase of traffic at a failing unsignalized intersection will cause an unproportionable increase in delay. Hence, the traffic added to the intersection from the proposed school exponentially increases the already failing level of service.

Both, a roundabout and a traffic signal were evaluated as potential mitigation measures at the intersection. Preliminary warrant analysis reveals that a signal is warranted at the location under background conditions. The intersection will operate at acceptable LOS conditions with either a roundabout or traffic signal at that location.

The school site is a by-right use on the property, and the traffic impact study was prepared to satisfy the performance standards in ZOAM-2012-0004. Per the performance standards, the traffic study identifies transportation improvements triggered by the proposed school site. As noted above, the intersection has a failing level of service under background conditions 2020 and the need for mitigation measures is triggered by existing + background traffic. Hence, any improvements at this intersection should not be the responsibility of LCPS.

6. *At the Braddock Road/Northstar Blvd intersection (year 2020); a signal and left turn lanes on the NB and SB approaches are recommended for the future without development (year 2020). We understand that a signal is*

planned at this location by year 2020 and it can be used as a mitigation measure. Are these left turn lanes for NB and SB proffered or planned by year 2020? These details should be included in the report. Also, if these back ground improvements regarding turn lanes are not proffered and/or programmed by year 2020 than;

- a. The report should analyze Future year 2020 with proposed development without above mentioned left turn lanes improvements (use only signal as signal is planned or proffered).*
- b. A comparison of Level of service and 95th percentile queue should be provided without above assumed left turn lanes improvements for future year 2020 without development Vs with development.*
- c. What will be the mitigation measures considered by development to bring the LOS/queues to the future background conditions without above left turn lanes improvements (that are not programmed/planned/proffered).*

As discussed at the meeting held on July 31, 2017, the improvements triggered at the intersection of Braddock Road and Northstar Boulevard are purely due to existing and background traffic. Consistent with the approved scoping document, the extension of Northstar Boulevard to Route 50 was assumed to be in place by 2020. This regional improvement in combination with background traffic triggers the need for improvements at the intersection of Braddock Road and Northstar Boulevard.

The traffic signal at Braddock Road and Northstar Boulevard intersection is a proffered improvement by the Kirkpatrick West development. While specific addition of turn lanes is not proffered, it is anticipated that turn lanes would be constructed where needed with the signal, similar to the signal and turn lane improvements that are underway at the intersection of Braddock Road and Summerall Drive, in the vicinity of the Braddock Road/Northstar Boulevard intersection.

Note that a majority of the attendance zones identified for the proposed High School (HS-9) are zones that include students currently attending John Champe High School just north of the subject intersection. Hence, as shown in the traffic study, a significant number of existing vehicular trips at the intersection of Braddock/Northstar Boulevard which are intended for John Champe High School will be diverted to the future High School (HS-9). This will result in shifting of traffic between certain turn lane movements of the intersection (i.e. westbound right shifting to westbound through and southbound left shifting to eastbound through). Overall, the impact from the proposed High School trips at the intersection of Northstar Boulevard and Braddock Road will be minimal (net increase of only approximately 11% in peak hour volumes in the AM and 3% in peak hour volumes in the commuter PM in 2020 conditions).

- 7. *At the Braddock Road/Northstar Blvd intersection (Year 2023); a second through lane on the NB and SB approaches are recommended for the future without development (year 2023). Are these through lanes for NB and SB proffered or planned by year 2023? These details should be included in the report. Also, if these back ground improvements regarding through lanes are not proffered and/or programmed by year 2023 than;***
 - a. The report should analyze Future year 2023 with proposed development without above mentioned through lanes.*
 - b. A comparison of Level of service and 95th percentile queue should be provided without above assumed left turn lanes improvements for future year 2023 without development Vs with development.*

- c. What will be the mitigation measures considered by development to bring the LOS/queues to the future background conditions without above through lanes improvements (that are not programmed/planned/proffered).*

As noted under response to comment #6 and discussed at the meeting held on July 31, 2017, the improvements triggered at the intersection of Braddock Road and Northstar Boulevard are purely due to existing and background traffic. Consistent with the approved scoping document, the extension of Northstar Boulevard to Route 50 was assumed to be in place by 2020 and the construction of Northstar Boulevard between Route 50 and Shreveport Drive to be in place by 2023. These regional improvements in combination with background traffic trigger the need for additional improvements at the intersection of Braddock Road and Northstar Boulevard.

Partial funding for the widening of Northstar Boulevard to four lanes between Tall Cedars Parkway and Braddock Road is identified in the FY 2018 CIP. The funding is allocated in 2022. The CIP funding information has been added to the traffic study.

As noted under response to Comment #6, due to the diversion of trips from John Champe High School to the proposed High School (HS-9) the impact from the proposed Elementary and High School trips at the intersection of Northstar Boulevard and Braddock Road will be minimal (net increase of only approximately 12% in peak hour volumes in the AM and 3% in peak hour volumes in the commuter PM in 2023 conditions).

8. *Page 25, year 2018 should be 2020. Please check and correct accordingly.*

Comment noted. This typo has been corrected.

9. *Page 54; year 2020 should be 2023. Please check accordingly.*

Comment noted. This typo has been corrected.

10. *Page 65; year 2020 should be 2023. Please check and correct accordingly. Revisit other places of the report as well if there are any other typo mistakes.*

Comment noted. This typo has been corrected.