County of Loudoun

Office of Transportation Services

MEMORANDUM

RECEIVED
AUG 16 2010
LOUDOUN COUNTY
DEPARTMENT OF PLANNING

DATE: August 16, 2010

TO: Marchant Schneider, Project Manager
Department of Planning

FROM: George Phillips, Senior Transportation Planner LM FOR GP
Lou Mosurak, Senior Coordinator LM

SUBJECT: **ZMAP 2010-0001 & SPEX 2010-0003**
Dulles South High School (HS-7) and Elementary School
Second Referral

Background

In response to first Office of Transportation Services (OTS) referral comments dated July 13, 2010, the Applicant has provided revised materials and responses for review. This review is based on materials received from the Department of Planning on July 28, 2010, including (1) a response letter from the Applicant's representative dated July 22, 2010, (2) a supplemental traffic statement from Gorove/Slade Associates, Inc., dated July 22, 2010, responding to OTS referral comments #6 and #11, and (3) a plan set prepared by Bowman Consulting, revised through July 22, 2010. OTS also reviewed (4) a second supplemental traffic statement from Gorove/Slade Associates, Inc., dated August 12, 2010, responding to OTS referral comment #11. Additionally, OTS staff met with the Applicant's representatives on July 21, 2010 and August 10, 2010.

Status of Transportation Comments

1. Initial Staff Comment (First Referral July 13, 2010): In the Statement of Justification, the Applicant indicates that it will construct a half-section (two lanes) of Northstar Boulevard (Route 659 Relocated) between Tall Cedars Parkway and Braddock Road and pave a half-section (two lanes) of Braddock Road from the end of the existing pavement (in the vicinity of Great Berkhamstead Drive (the entrance to the Stratshire Crossing (Braddock Crossing) development) west to Northstar Boulevard and Goshen Road. These improvements are proposed to be in place prior to the opening of the proposed high school, if not already constructed by others. These road improvements necessary to access the school site and are recommended to be included in the future proffers and conditions associated with these applications.

   Applicant's Response (July 22, 2010): It is proposed to have two lanes of Northstar Boulevard between Tall Cedars Parkway and Braddock Road in place and to extend Braddock Road from the end of the existing pavement to Northstar Boulevard prior to the opening of the high school. (Braddock Road would be extended such that it provides an appropriate connection to Northstar Boulevard and allows proper transition. The construction plans and profiles for Braddock Crossing's first phase takes Braddock up to Northstar Boulevard. If Braddock Crossing has not

extended Braddock Road for their second phase (across Northstar Boulevard and out to Goshen Road), then LCPS would provide improvement at the intersection of Northstar Boulevard and Braddock Road to ensure the tie in to Braddock Road with appropriate transitions). The extension of Braddock Road between Northstar Boulevard and Goshen Road would appropriately be the responsibility of the developer of Braddock Crossing in accord with that project's proffer requirements.

Issue Status: The Applicant indicates that Northstar Boulevard (Route 659 Relocated) between Tall Cedars Parkway and Braddock Road (Route 620) and the unpaved portion of Braddock Road (Route 620) from Northstar Boulevard to the existing end of pavement to the east on Braddock Road will be in place prior to the opening of the high school. Provided this commitment is included in the SPEX conditions of approval, this issue is resolved.

2. Initial Staff Comment (First Referral July 13, 2010): There are existing proffered commitments from the Stone Ridge, C.D. Smith, and Braddock Crossing developments to construct the Northstar Boulevard and Braddock Road improvements described in Comment 1 above. The Applicant indicates that at such time as the surrounding properties (Stone Ridge, C.D. Smith, and Braddock Crossing) reach the development thresholds that would have required the construction of these improvements, the cash-in-lieu of construction clauses in the respective proffers statements would be triggered. This should be verified by appropriate County staff.

   Applicant's Response (July 22, 2010): This comment is addressed to County staff. However, it may be helpful to have copies of letters prepared by the Zoning Staff in December of 2009 which sought early right-of-way dedication from the C.D. Smith and Braddock Crossing developments and further addressed the cash-in-lieu of construction. With regard to the Stone Ridge portion of Northstar Boulevard, Stone Ridge will construct the eastern two lanes of Northstar Boulevard between Tall Cedars Parkway and the southern boundary of Stone Ridge, including the 10 foot in width trail, prior to the issuance of the 1st zoning permit in Land Bay 1. The proposed high school is to be located in Land Bay 1. Stone Ridge is proffered to construct this improvement as a part of the recently approved ZCPA 2006-0003 and ZMAP 2006-0011 applications, reference Proffer II. C. 3., attached for easy reference. Further, as a part of the contract between LCSB and Stone Ridge, there are provisions for Stone Ridge to construct these two lanes, pursuant to Post Closing Development Matters, Paragraph 14 (a) and (b), also attached.

   Issue Status: As discussed at the August 10, 2010 meeting with the Applicant, this issue is resolved.

3. Initial Staff Comment (First Referral July 13, 2010): The Applicant should construct the eastbound right turn lane and the southbound left turn lane at the Northstar Boulevard/Braddock Road intersection prior to the opening of the high school in 2012 (these turn lanes are identified in the traffic study as being warranted at that time). The Applicant should seek reimbursement for these improvements to the extent that they have been proffered as part of other developments in the area.

Applicant's Response (July 22, 2010): Pursuant to the Staff/Applicant meeting on July 21, 2010, it has been clarified that at the intersection of Northstar Boulevard/Braddock Road, the Applicant should construct the westbound right turn lane (not eastbound) and the southbound left turn lane, prior to the opening of the high school in 2012. (Please see page ix, Future Conditions with Development (High School Build Out - 2010)). Any cash-in-lieu proffered for these improvements by others would be provided to the County. LCPS acknowledges that these two turn lanes improvements will be provided as a part of the high school development.

Issue Status: OTS staff acknowledges the correction that the Applicant should construct the westbound (not eastbound) right turn lane on Braddock Road (Route 620) and the southbound left turn lane on Northstar Boulevard (Route 659 Relocated). The Applicant acknowledges that these turn lanes will be provided as a part of the high school development. Issue resolved, provided language to this effect is included in the SPEX conditions. The Applicant notes that any cash-in-lieu proffered for these improvements by other developments would be provided to the County at the time required per the proffers for those developments.

4. Initial Staff Comment (First Referral July 13, 2010): The Applicant should construct the separate left and right turn lanes on Northstar Boulevard at Road A and Road B (the two entrances to the school site) prior to the opening of the high school in 2012, as recommended by the traffic study.

   Applicant's Response (July 22, 2010): Acknowledged.

   Issue Status: Issue resolved, provided that language to this effect is included in the SPEX conditions of approval.

5. Initial Staff Comment (First Referral July 13, 2010): Tall Cedars Parkway has been constructed by Stone Ridge west to the vicinity of future Northstar Boulevard. Should any additional construction be necessary to tie this existing roadway to the proposed half-section of Northstar Boulevard described in Comment 1 above, the Applicant should construct such improvements concurrent with the construction of Northstar Boulevard.

   Applicant's Response (July 22, 2010): Acknowledged.

   Issue Status: Issue resolved, provided language requiring any necessary completion of this segment of roadway prior to the opening of the high school is included in the SPEX conditions of approval. OTS staff notes that this section of roadway was bonded by Stone Ridge under approved CPAP 2005-0091.

6. Initial Staff Comment (First Referral July 13, 2010): If not already constructed by others prior to the opening of the high school in 2012, the Applicant should construct the turn lanes recommended by the traffic study at the Gum Spring Road/Braddock Road intersection. Any necessary modifications to the existing traffic signal at this intersection should also be the responsibility of the Applicant if such modifications have not already been made by others. The

Applicant should seek reimbursement for these improvements/modifications to the extent that they have been proffered as part of other developments in the area.

Applicant's Response (July 22, 2010): As discussed in our July 21, 2010 meeting, the traffic study accounted for traffic generated by planned developments in the vicinity of the proposed schools. Hence, as traffic from the planned developments was accounted for, similarly the proffered roadway improvements by these planned developments were also assumed to be in place for the analysis years. As outlined below, the following improvements, which are not in place, were identified in the traffic study under the high school opening year (2012) at the intersection of Gum Spring Road/Braddock Road:

- *Separate Left Turn Lane on Braddock Road EB (to NB 659) – Proffered by Kirkpatrick Farms and Seven Hills*
- *Separate Left Turn Lane on Braddock Road WB (to SB 659) - Proffered by Seven Hills*
- *Upgrade Right Turn Lane on Braddock Road EB (to SB 659) to meet VDOT Standards - Proffered by Kirkpatrick Farms*

As stated above, the traffic study incorporates trips generated by the developments that have proffered to provide these improvements. However, if the trips generated by the background developments in the area are eliminated from the analysis, and an analysis of the intersection is conducted utilizing the existing traffic, the inherent growth (regional traffic increase) and the trips generated by the schools, the improvements listed above are not required. The technical memorandum confirming this finding, prepared by Gorove/Slade Associates dated July 22, 2010, is included for staff consideration. Based on this memorandum, LCPS asks that the intersection improvements (outlined above) be appropriately provided by those developments that have proffered these improvements as these improvements are not needed to facilitate safe and adequate access to the proposed schools.

Issue Status: The referenced traffic memorandum, dated July 22, 2010, is provided as *Attachment 1*. Figure 1 and Table 1 in the memo indicate that the Gum Spring Road (Route 659)/Braddock Road (Route 620) intersection will operate at acceptable LOS during both the high school AM and PM peak hours (8:00 – 9:00 AM and 3:30 – 4:30 PM, respectively) in both 2012 and 2015 with existing traffic signal and lane configuration (i.e., without the additional turn lanes noted in the Applicant's response above). It is noted that these turn lanes are to be constructed pursuant to the proffers for the Seven Hills and Kirkpatrick Farms developments. Issue resolved.

7. Initial Staff Comment (First Referral July 13, 2010): The Applicant has submitted a request to the Board of Supervisors to abandon the segment of Goshen Road (Route 616) from Road A south to Braddock Road in order to facilitate the development of the proposed high school and elementary school. OTS has received comments from various referral agencies regarding this proposed abandonment; these comments and the Applicant's responses (dated June 8, 2010) are provided as *Attachment 42* [in the first OTS referral]. Of particular note is the comment from VDOT indicating that the abandonment cannot take place until the replacement section of roadway (Route 659 Relocated (Northstar Boulevard)) has been constructed and is accepted into the VDOT secondary system for maintenance. Further, OTS notes that VDOT does not accept

half-sections of roadways (as is being proposed) for maintenance without a commitment from the County assuring the completion of the remaining half-section. These matters have the potential to delay the development of the proposed schools. Coordination and resolution of these matters with VDOT needs to occur in a timely manner, and all issues identified in the abandonment referral comments need to be resolved prior to the abandonment request moving forward for consideration by the Board of Supervisors.

Applicant's Response (July 22, 2010): At the Staff/Applicant meeting on July 21, 2010, it was agreed that a meeting should be held with appropriate County and VDOT staff to review the abandonment process and the acceptance of two lanes of Relocated Route 659 (Northstar Boulevard). We appreciate staff's assistance in the quick resolution of these concerns.

Issue Status: The referenced meeting to discuss issues regarding the proposed abandonment was held on August 10, 2010. At the meeting, it was determined that only the on-site portion of Goshen Road (Route 616) between Road A and Road B would be requested for abandonment concurrently with the ZMAP and SPEX applications, and that the southern portion of Goshen Road (between Road B and Braddock Road) would be abandoned at a later date so as to maintain legal access to other parcels in the area which have yet to be subdivided. VDOT staff confirmed that a replacement road does not need to be in place if Goshen Road is abandoned pursuant to VA Code Section 33.1-151 because it is deemed no longer necessary (OTS defers to the Office of the County Attorney for a final determination on this matter). VDOT staff also clarified that the Board of Supervisors would not have to guarantee the remaining half-section of Northstar Boulevard because (1) Northstar Boulevard is a CTP road, and (2) the full right-of-way for the remaining half-section will be dedicated with construction of the initial half-section. The Applicant indicated that it would be revising and resubmitting the materials for its abandonment request to OTS staff in preparation for a concurrent Board of Supervisors public hearing with the ZMAP and SPEX applications.

Based on a conversation with Fire and Rescue staff, OTS recommends a condition of approval requiring that the abandoned segment of Goshen Road remain passable to emergency vehicles until such time as Road A, Road B, and Northstar Boulevard (between Tall Cedars Parkway and Braddock Road) are open to traffic. It is also noted that an additional through connection between Route 50 and Braddock Road (via Stone Springs Boulevard and Destiny Drive) is anticipated to be in place by early 2011 per the approved Stone Ridge proffers (ZMAP 2006-0011).

8. Initial Staff Comment #8 (First Referral July 13, 2010): Further discussion is recommended with the Applicant and VDOT regarding Goshen Road north of the site. The potential of cutting off site access from Goshen Road at the northern site boundary should be explored in order to limit additional vehicle trips on this substandard facility.

   Applicant's Response (July 22, 2010): Access to the school facilities from Road A (at Goshen Road) is limited to the bus loop and teacher parking. LCPS is willing to restrict school bus usage of Goshen Road to only the bus(es) that would pick-up and drop-off students residing along Goshen Road unless traffic conditions, such as an emergency, otherwise warrant use of

the unpaved section. Further, LCPS is willing to advise teachers to avoid use of Goshen Road. These measures would reduce potential traffic on Goshen Road.

Issue Status: OTS maintains its concern regarding the condition of Goshen Road (Route 616) north of the site, but understands that this access must be maintained. OTS defers to VDOT regarding the condition of this roadway and its ability to accommodate additional traffic. The Applicant's proposal to allow only the school buses that need to pick-up and drop-off students along Goshen Road, as well as the Applicant's willingness to otherwise discourage the use of Goshen Road by other school-related traffic, are appreciated. OTS recommends a SPEX condition of approval to this effect be included with this application. Similar SPEX conditions were included with the approval MS-5 regarding the unpaved segment of Ticonderoga Road (Route 613) south of Braddock Road.

9. Initial Staff Comment (First Referral July 13, 2010): The plan set (Sheet 5) depicts an extensive pedestrian network for the proposed high school and elementary school. This network includes pedestrian trails to the south and west connecting to the Westport development, and to the north connecting to a portion of the Stone Ridge development. Commitments to construct the pedestrian network as shown on Sheet 5 should be included with these applications, including extensions of trails to logical termini within Westport and Stone Ridge when those developments are constructed. The proffered trail on the east side of Northstar Boulevard should be in place prior to the opening of the high school in 2012.

   Applicant's Response (July 22, 2010): LCPS will implement the pedestrian network planned for the proposed school facilities as development occurs, as depicted on Sheet 5 of the SPEX plat. LCPS has been coordinating with Stone Ridge and Westport to determine the appropriate connection points and will build the pedestrian trails to the school boundaries and along proposed roadways. A portion of the school site is within Stone Ridge. Road A and Relocated Route 659/Northstar Boulevard are between the school facilities and the remainder of Stone Ridge. As such, the construction of sidewalks/trails along Road A and Relocated Route 659 will connect to Stone Ridge's proffered pedestrian network. With regard to Westport, it is not known when this project will move forward. It would be costly for LCPS to mobilize equipment in the future (after the school project is complete) to construct these trail extensions. In addition, it would be necessary for LCPS to secure permission and easements on the Westport property in order to construct. LCPS will provide the pedestrian trails to the property boundaries for future connection by others. The trail on the east side of Northstar Boulevard will be constructed in conjunction of the two lanes of Northstar Boulevard and will be in place prior to the opening of the high school in 2012.

   Issue Status: The Applicant's commitment to construct the pedestrian network as depicted on Sheet 5 of the SPEX plat is appreciated, as is the explanation regarding the issues related to future trail extensions into Westport. Provided that the pedestrian network depicted on Sheet 5 of the SPEX plat is implemented in conjunction with development of the respective schools, this issue is resolved.

10. Initial Staff Comment (First Referral July 13, 2010): The Statement of Justification (Page 11) notes that all-way stop conditions (stop signs or traffic signals), crosswalks, and crossing guards

are necessary to support walk zones to the proposed schools across Northstar Boulevard at both Road A and Road B. OTS notes that the referenced stop signs and crosswalks will require VDOT review and approval, and the Applicant should be responsible for providing appropriate warrant studies for the proposed all-way stop conditions on Northstar Boulevard at both Road A and Road B. Additionally, the Applicant should commit to the installation of traffic signals on Northstar Boulevard at Road A and Road B at such time as signals are warranted by the County or VDOT.

Applicant's Response (July 22, 2010): LCPS will provide appropriate warrant studies as required for the proposed all-way stop control for Roads A and B. Based on the analysis presented in the traffic study, a signal will not be warranted at the intersection of Road A and Road B with Northstar Boulevard under the High School (2012) and Elementary School (2015) opening years. As discussed with and agreed to by the OTS staff at the meeting held on July 21, 2010, signal warrant studies will not be conducted at Road A and Road B. This decision is based on 1) the uncertainty as to when Northstar Boulevard will be extended between Tall Cedars Parkway and Route 50, 2) there are no existing proffers to construct this extension, 3) these signals, if warranted in the future, would primarily be due to regional traffic not the school traffic, 4) the school traffic peak hours are different from the commuter peak hours and 5) the appropriate timing for the signal analysis will likely be well beyond the full build out of the proposed schools (year 2020+).

Issue Status: Issue resolved, provided that a condition of approval is included that requires the Applicant to conduct appropriate warrant studies for the recommended all-way stop conditions on Northstar Boulevard at both Road A and Road B prior to the opening of the high school.

11. Initial Staff Comment (First Referral July 13, 2010): While not included in the scoping agreement, a significant percentage of high school site-generated traffic is anticipated by the traffic study to go through the Stone Springs Boulevard/Tall Cedars Parkway intersection. According to the June 2009 traffic study for the Stone Ridge Commercial rezoning (ZMAP 2006-0011), certain movements at this intersection are forecast to operate at failing LOS (LOS E or F) by 2015 even without the proposed schools in place. The Applicant should analyze this intersection and identify and commit to necessary mitigation measures to maintain/restore acceptable LOS (LOS D or better) at this intersection.

Applicant's Response (July 22, 2010): The requested analysis of the Stone Springs Boulevard and Tall Cedars Parkway intersection has been conducted and is presented in the traffic memorandum prepared by Gorove/Slade Associates dated July 22, 2010. The analysis reveals that the intersection will operate at acceptable levels of service for the High School peak hour (2012) and Elementary School peak hour (2015) as an unsignalized (all-way stop control) intersection.

Issue Status: The referenced traffic memorandum dated July 22, 2010 *(Attachment 1)* reviewed the Stone Springs Boulevard/Tall Cedars Parkway intersection during the AM and PM peak hours for each school, and the supplemental traffic memorandum dated August 12, 2010 *(Attachment 2)* reviewed the same intersection during both the AM and

PM commuter peak hours. Table 2 and Figure 2 in the July 22, 2010 memo and Tables 1A and Tables 1B in the August 12, 2010 memo indicate that the intersection is forecast to operate at acceptable LOS under all time periods analyzed in 2015 with the existing all-way stop control (four-way stop) in place. Issue resolved.

Conclusion

Provided that the SPEX conditions of approval noted above are included with the applications, and the issues related to the abandonment and condition of Goshen Road are adequately addressed, OTS would have no objection to the approval of these applications. OTS staff is available to meet with the Applicant and VDOT for further discussion of these applications if necessary.

ATTACHMENTS

1. Supplemental Traffic Memorandum (July 22, 2010)
2. Supplemental Traffic Memorandum (August 12, 2010)

cc: Andrew Beacher, Director, OTS
Jason Hobbie, Office of the County Attorney

GOROVE/SLADE ASSOCIATES, INC.
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MEMORANDUM

TO: George Phillips — Loudoun County
Lou Mosurak — Loudoun County
Marchant Schneider — Loudoun County

FROM: Anushree Goradia
Tushar Awar, P.E.
Christopher Tacinelli, P.E.

DATE: July 22, 2010

SUBJECT: Dulles South High School (HS-7) and Elementary School (ZMAP 2010-0001 and SPEX 2010-003) – Supplemental Analysis: Response to OTS Comments

INTRODUCTION

The Office of Transportation Services (OTS) reviewed the traffic study prepared for this application dated March 8, 2010. OTS staff also reviewed the revised version of the traffic study June 9, 2010, which incorporated the School Board's May 2010 adopted attendance zones/catchment areas for the proposed High School. A referral dated July 13, 2010 was issued by OTS.

OTS COMMENT AND RESPONSE

Comment #6 from the OTS referral states – ***'If not already constructed by others prior to the opening of the high school in 2012, the Applicant should construct the turn lanes recommended by the traffic study at the Gum Spring Road/Braddock Road intersection. Any necessary modifications to the existing traffic signal at this intersection should also be the responsibility of the Applicant if such modifications have not already been made by others. The Applicant should seek reimbursement for these improvements/modifications to the extent that they have been proffered as part of other developments in the area.'***

At the meeting held with OTS staff on July 21, 2010, the improvements identified in the traffic study at the intersection of Gum Spring Road/Braddock Road prior to the opening of the high school in 2012 were identified. The following improvements identified in the traffic study at this intersection, although proferred by others, are not in place:

- Separate Left Turn Lane on Braddock Road EB (to NB 659) – Proffered by *Kirkpatrick Farms and Seven Hills*
- Separate Left Turn Lane on Braddock Road WB (to SB 659) - Proffered by *Seven Hills*

ATTACHMENT 1

- Upgrade Right Turn Lane on Braddock Road EB (to SB 659) to meet VDOT Standards - Proffered by *Kirkpatrick Farms*

At the meeting with OTS staff, it was discussed that as the analysis in the traffic study accounted for traffic generated by the background developments, including the background developments listed above; there is a certain level of ambiguity with respect to the volume/capacity thresholds for these improvements. Hence, an analysis was conducted with the existing traffic, regional growth and the traffic generated by the proposed schools to evaluate exact level of impact from the school traffic at this intersection, without assuming the improvements listed above and without assuming traffic generated by approved developments in the area.

The existing volumes, inherent regional growth rates, and the school traffic distribution were maintained as presented in and consistent with the traffic study, dated June 9, 2010. Table 1 below presents the capacity analysis results.

Table 1: Intersection Capacity Analysis Results – Gum Spring Road/Braddock Road

	AM Peak Hour		PM Peak Hour	
Intersection (Approach/Movement)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Future Conditions with Development (2012) -HS Peak Hour (8-9 AM/3:30-4:30 PM)				
Overall (Signalized)	**D**	**40.3**	**C**	**29.3**
Eastbound Approach	D	48.5	C	30.1
Westbound Approach	D	46.0	C	28.7
Northbound Approach	D	40.4	C	29.5
Southbound Approach	C	26.5	C	29.1
Future Conditions with Development (2015) -HS Peak Hour (8-9 AM/3:30-4:30 PM)				
Overall (Unsignalized – All Way Stop Control)	**D**	**43.2**	**C**	**30.3**
Eastbound Approach	D	52.1	C	31.3
Westbound Approach	D	50.4	C	29.5
Northbound Approach	D	41.8	C	30.3
Southbound Approach	C	28.5	C	30.3

**Note: There is no traffic from the proposed Elementary School anticipated to utilize this intersection.*

Figure 1 on the next page shows the traffic volumes, capacity analysis results and lane configuration assumed for the intersection of Gum Spring Road and Braddock Road. The traffic count sheets and the capacity analysis Synchro worksheets are attached in the Appendix section.

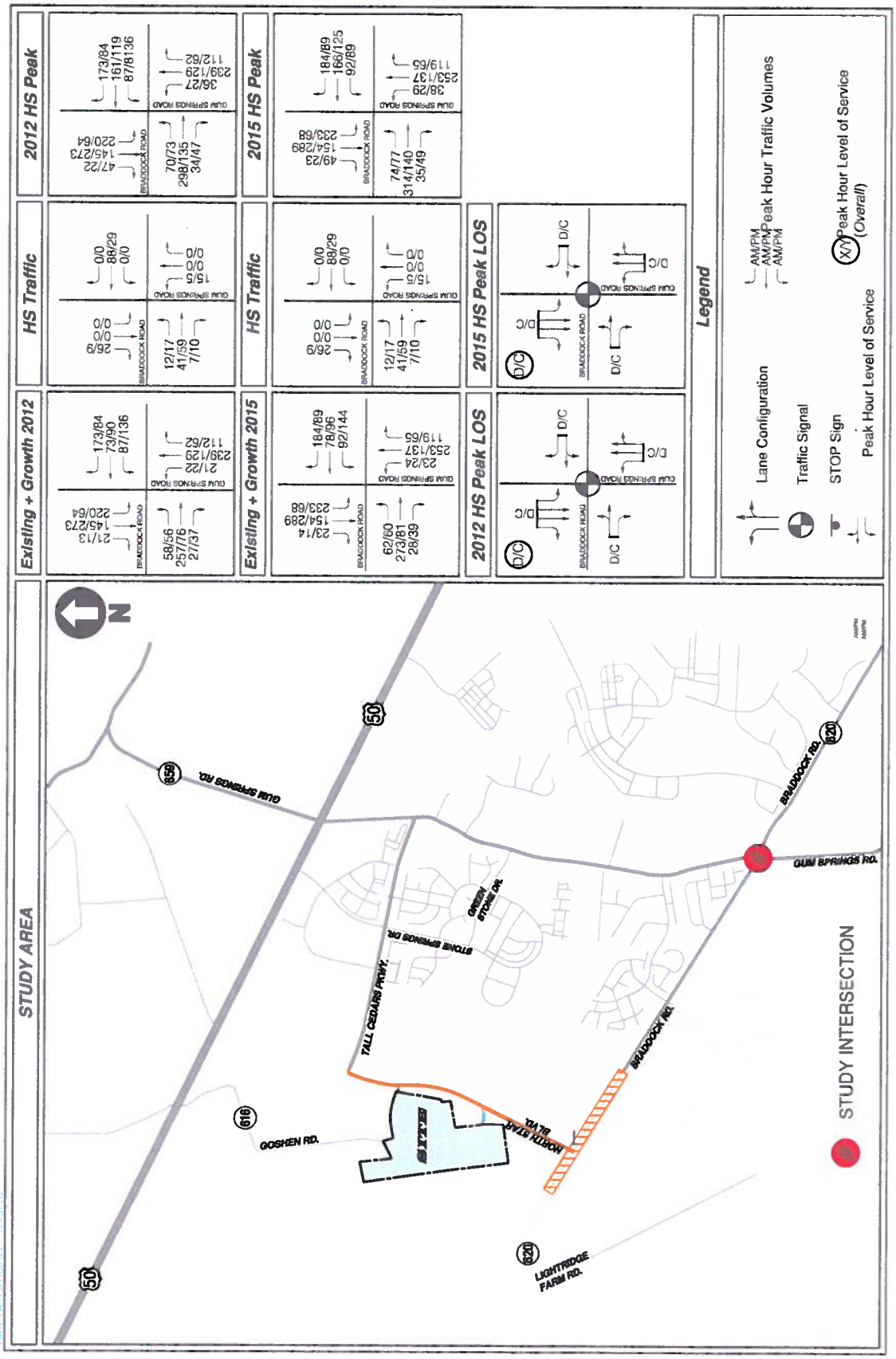

Figure 1
Gum Spring Road and Braddock Road

Comment #11 from the OTS referral states –'*While not included in the scoping agreement, a significant percentage of high school site-generated traffic is anticipated by the traffic study to go through the Stone Springs Boulevard/Tall Cedars Parkway intersection. According to the June 2009 traffic study for the Stone Ridge Commercial rezoning (ZMAP 2006-0011), certain movements at this intersection are forecast to operate at failing LOS (LOS E or F) by 2015 even without the proposed schools in place. The Applicant should analyze the intersection and identify and commit to necessary mitigation measures to maintain/restore acceptable LOS (LOS D or better) at this intersection.*'

In order to address this comment, this memorandum presents the results of the analysis conducted at the intersection of Stone Springs Boulevard/Tall Cedars Parkway under future conditions with development – HS Peak Hour (2012), and future conditions with development – ES Peak Hour (2015. The School Board's adopted catchment area was utilized to evaluate the capacity analysis results. The background traffic generation and distribution was maintained consistent with the June 9, 2010 traffic impact study. Traffic counts were conducted at the intersection of Stone Springs Boulevard and Tall Cedars Parkway on Thursday, November 19, 2009. Table 2 below presents the capacity analysis results.

Table 2: Intersection Capacity Analysis Results – Stone Springs Boulevard and Tall Cedars Parkway

	AM Peak Hour		PM Peak Hour	
Intersection (Approach/Movement)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Existing Conditions (2009) -HS Peak Hour (8-9 AM/3:30-4:30 PM)				
Overall (Unsignalized – All Way Stop Control)	**A**	**7.7**	**A**	**8.0**
Eastbound Approach	A	7.9	A	8.0
Westbound Approach	A	7.4	A	7.8
Northbound Approach	A	7.8	A	8.0
Southbound Approach	A	7.6	A	8.0
Future Conditions with Development (2012) -HS Peak Hour (8-9 AM/3:30-4:30 PM)				
Overall (Unsignalized – All Way Stop Control)	**A**	**8.5**	**A**	**8.4**
Eastbound Approach	A	8.4	A	8.5
Westbound Approach	A	8.2	A	8.0
Northbound Approach	A	9.0	A	8.7
Southbound Approach	A	8.1	A	8.2
Future Conditions with Development (2015) -ES Peak Hour (7-8 AM/2:15-3:15 PM)				
Overall (Unsignalized – All Way Stop Control)	**B**	**11.6**	**A**	**7.8**
Eastbound Approach	B	10.9	A	7.9
Westbound Approach	B	10.2	A	7.5
Northbound Approach	B	13.9	A	7.5
Southbound Approach	B	10.0	A	7.8

Figure 2 on the next page shows the traffic volumes, capacity analysis results and lane configuration for the intersection of Stone Springs Boulevard and Tall Cedars Parkway. The traffic count sheets and the capacity analysis Synchro worksheets are attached in the Appendix section.

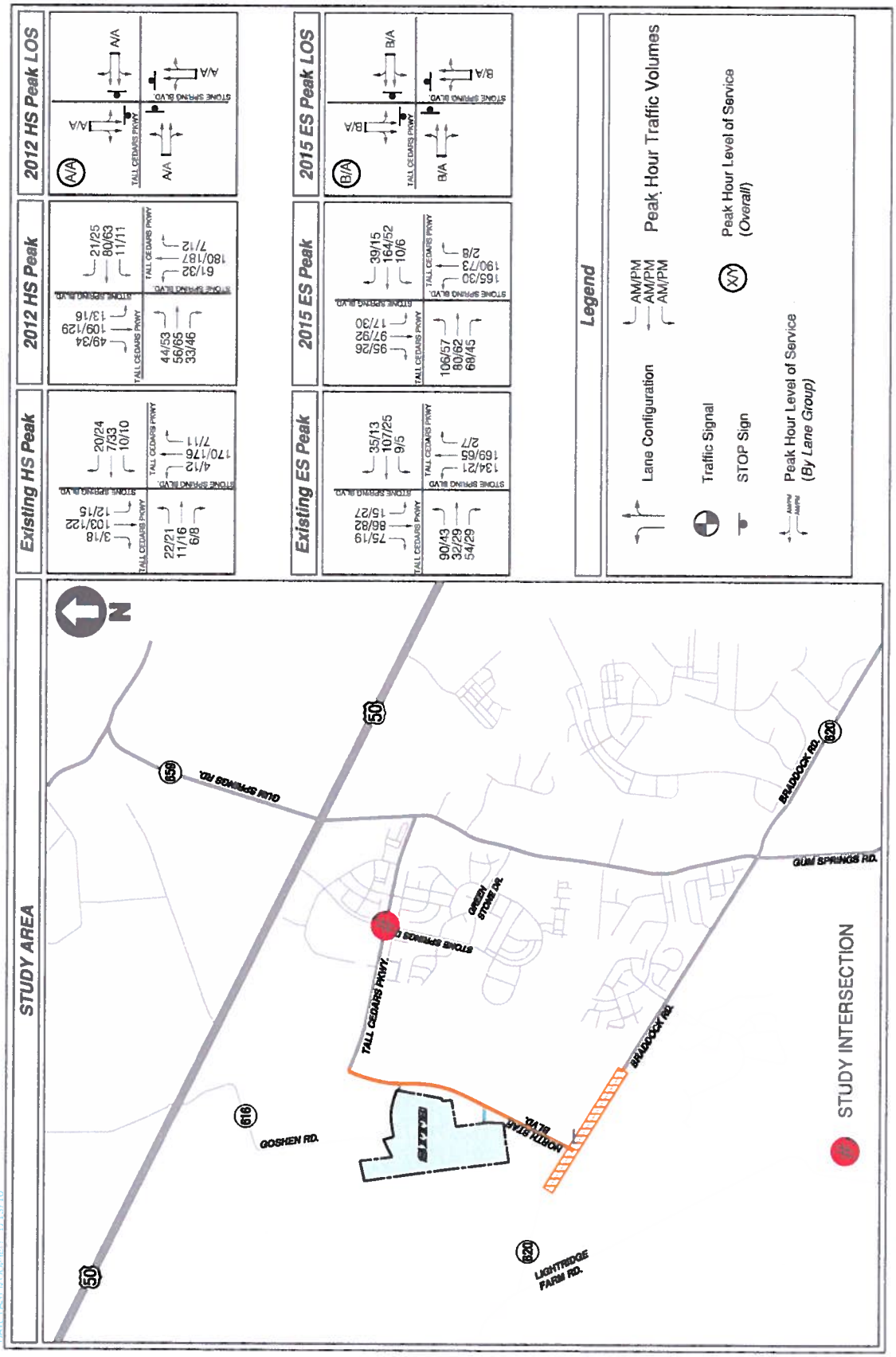

Figure 2
Stone Springs Boulevard and Tall Cedars Parkway

CONCLUSIONS

- A meeting was held with OTS staff to discuss the referral dated July 13, 2010 provided by OTS for the proposed Dulles South High School (HS-7) and Elementary School. This memorandum presents the supplemental analysis as requested in the referral, and discussed at the meeting.
- An analysis was conducted at the intersection of Gum Spring Road and Braddock Road with just the existing traffic, regional growth and the traffic generated by the proposed schools to evaluate the exact level of impact from the school traffic at this intersection. The turn lane improvements proffered by other approved developments in the area and the traffic generated by approved developments in the area was not incorporated.
- The supplemental analysis presented in this memorandum as outlined above for the intersection of Gum Spring Road and Braddock Road shows that the intersection will operate at acceptable levels of service under future conditions (2012 and 2015). Hence, this analysis shows that the minimal addition of school traffic can be accommodated by the improvements that are already in place at this intersection. With the addition of traffic generated by background developments, the turn lane improvements identified in the traffic study are triggered.
- Per OTS staff's request, the intersection of Stone Springs Boulevard and Tall Cedars Parkway was analyzed under future conditions with development (2012 and 2015) scenarios. The capacity analysis results presented in this memorandum show that the intersection operates at acceptable levels of service conditions under existing conditions as an all way stop control intersection and will continue to operate at acceptable level of service conditions under future conditions with the High School (2012) and Elementary School (2015) in place.
- Based on these findings, we conclude that the intersection of Stone Springs Boulevard and Tall Cedars Parkway will operate at acceptable levels of Service under future conditions during the school peak hours.

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MEMORANDUM

TO: George Phillips — Loudoun County
Lou Mosurak — Loudoun County
Marchant Schneider — Loudoun County

FROM: Anushree Goradia
Tushar Awar, P.E.
Christopher Tacinelli, P.E.

DATE: August 12, 2010

SUBJECT: Dulles South High School (HS-7) and Elementary School (ZMAP 2010-0001 and SPEX 2010-003) – Supplemental Analysis: Response to OTS Comments

INTRODUCTION

The Office of Transportation Services (OTS) reviewed the traffic study prepared for this application dated March 8, 2010. OTS staff also reviewed the revised version of the traffic study June 9, 2010, which incorporated the School Board's May 2010 adopted attendance zones/catchment areas for the proposed High School. A referral dated July 13, 2010 was issued by OTS. A supplemental analysis memorandum dated July 22, 2010 was prepared and submitted in order to address Comments # 6 and # 11 from the OTS referral. A follow up meeting was held with OTS staff on August 10, 2010 to discuss the supplemental analysis.

At the meeting held with OTS staff on August 10, 2010, additional analysis was requested for the intersection of Stone Springs Boulevard and Tall Cedars Parkway (related to comment # 11) during the 'Commuter' peak hours. The school generated traffic during the morning peak hour overlaps with the commuter peak hour. However, in the PM, the school peak hours fall outside the commuter peak hours.

Per OTS staff's request capacity analysis was conducted for both the AM and PM commuter peak hours at the intersection of Stone Springs Boulevard and Tall Cedars Parkway. The background traffic generation and distribution was maintained consistent with the June 9, 2010 traffic impact study. The information presented in the traffic study was utilized for this analysis as well. The results are summarized in Tables 1A and 1B on the next page.

ATTACHMENT 2

Table 1A: Intersection Capacity Analysis Results – Future Conditions with Development (2015) – AMPH

Intersection (Approach/Movement)	ES AM Peak Hour (7:00 AM - 8:00 AM) LOS	ES AM Peak Hour Delay (sec/veh)	HS AM Peak Hour (8:00 AM - 9:00 AM) LOS	HS AM Peak Hour Delay (sec/veh)	AM Commuter Peak Hour* (7:30 AM - 8:30 AM) LOS	AM Commuter Peak Hour* Delay (sec/veh)
Stone Springs Blvd. / Tall Cedars Pkwy. Overall (Unsignalized – All Way Stop Control)	**B**	**11.6**	**A**	**8.8**	**B**	**14.3**
Eastbound Approach	B	10.9	A	8.7	B	12.9
Westbound Approach	B	10.2	A	8.5	B	11.4
Northbound Approach	B	13.9	A	9.3	C	18.5
Southbound Approach	B	10.0	A	8.4	B	11.7

Table 1B: Intersection Capacity Analysis Results – Future Conditions with Development (2015) – PMPH

Intersection (Approach/Movement)	ES PM Peak Hour (2:15 PM - 3:15 PM) LOS	ES PM Peak Hour Delay (sec/veh)	HS PM Peak Hour (3:30 PM - 4:30 PM) LOS	HS PM Peak Hour Delay (sec/veh)	PM Commuter Peak Hour* (4:30 PM - 5:30 PM) LOS	PM Commuter Peak Hour* Delay (sec/veh)
Stone Springs Blvd. / Tall Cedars Pkwy. Overall (Unsignalized – All Way Stop Control)	**A**	**7.8**	**A**	**8.7**	**A**	**8.6**
Eastbound Approach	A	7.9	A	8.8	A	8.5
Westbound Approach	A	7.5	A	8.3	A	8.3
Northbound Approach	A	7.8	A	9.0	A	8.5
Southbound Approach	A	7.8	A	8.5	A	8.9

**Note: HS and ES Traffic Reduced from School Peak Hours*

CONCLUSIONS

- Per OTS staff's request, the intersection of Stone Springs Boulevard and Tall Cedars Parkway was analyzed under future conditions with development (2015) scenarios. The analysis was conducted for all relevant School and Commuter peak hours. The analysis reveals that the study intersection will operate at acceptable level of service under all peak hour scenarios.
- The school traffic % at the intersection of Stone Springs Boulevard and Tall Cedars Parkway during the commuter peak hours is:
    - 13% during the AM commuter peak hour, and
    - 11% during the PM commuter peak hour
- In addition, the proffer conditions for the Stone Ridge Commercial development reveal that a traffic signal is proffered at this intersection when warranted.