County of Fairfax, Virginia

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October 24, 2013

Mr. Paul J. Kraucunas, P.E.
Land Development Program Manager
Virginia Department of Transportation
4975 Alliance Drive
Fairfax, Virginia 22039

RE: VDOT Comment Letter for Dulles Corridor Study

Dear Mr. Kraucunas,

This letter is a response to VDOT's letter of September 16, 2013 containing VDOT review comments on the transportation report for the Dulles Corridor Study for the Fairfax County proposed Comprehensive Plan amendments for Land Unit A of the Dulles Suburban Center, and Reston-Herndon transit station areas in the Upper Potomac section for Fairfax County. A substantial number of comments, 65 in total, were provided by VDOT, some of which are very detailed and technical. This letter contains responses to each of the comments. These responses will also be attached to the staff report for these Comprehensive Plan amendments along with the VDOT comment letter. However, it is important to remember that this transportation analysis was done to support two Comprehensive Plan amendments which are intended to guide growth in this area of the County for at least the next 20 years. These are two critical plan amendments for the County given that the Silver Line is bringing new high quality transit service to the area. Within five years, four new Metrorail stations will open, with one of these stations, the Wiehle-Reston East Station, opening within the next few months. The primary purpose, therefore, of the Plan amendments are to set the stage for the type of transit-oriented development that is appropriate for this area given the significant investment in the expansion of the Metrorail system. Over the past three years, the Reston Master Plan Task Force, as well as the Route 28 Station South Working Group, has worked diligently to prepare these Plan Amendments.

Some of the very detailed VDOT comments cannot be fully addressed at the Comprehensive Plan stage since details regarding the type, size, and location of land uses for a development will not be known until a rezoning is submitted. Traffic studies will accompany any rezoning and will evaluate the impacts of a proposed development on the transportation network. These studies will include specific items such as turning bay capacity and entrances to developments as well as provide a Transportation Demand Management (TDM) program in addition to other mitigation measures to address the proposed development's impact on the transportation network.

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The transportation analysis submitted in conjunction with these Plan amendments is considerably more detailed than studies normally done in support of a Comprehensive Plan amendment. Overall, the study has found that the majority of forecasted transportation impacts can be mitigated with the enhanced transportation infrastructure being proposed in the Plan amendments. In our judgment, the analysis does contain sufficient information to evaluate the transportation system at the Comprehensive Plan phase. It is important to recognize that a number of future studies will be done following the adoption of the Plan amendments. Immediately following the adoption of the Plan amendment, the County intends to conduct a detailed analysis of the enhanced street network, similar to that conducted for the Route 28 South Study and similar to the Consolidated Traffic Impact Analyses (CTIAs) conducted for Tysons Corner. In addition, it is expected that traffic impact analyses will be conducted for rezoning proposals as noted above. These future studies will help to refine the findings of the transportation study done in support of the Plan Amendment and to ensure that mitigation measures are implemented at the appropriate time.

The letter from VDOT contains three summarizing paragraphs, which will be addressed here. VDOT expressed concerns of the cumulative impacts of other developments within the region. The transportation analysis took into account all relevant development assumed to be in place based on the Metropolitan Washington Council of Governments (COG) Round 8.0 2030 land use forecast. These forecasts were provided by each locality within the Washington Metropolitan region and thus future development has been assumed. Additionally, the Study also took into account development from the Tysons Corner Comprehensive Plan as well as the recently adopted Town of Herndon Metro plan that increased density on the north side of the future Herndon Metrorail Station.

VDOT's letter states the transportation analysis has insufficient information to assess the future land use scenario pointing to deficiencies in the Synchro analysis and trip making assumptions. The trip making assumptions are based on the regionally accepted Transportation Planning Board (TPB) model. These are derived from regional household travel surveys that reflect travel behavior in the entire TPB region. Therefore, the County does not believe there is an issue with the trip making assumptions given the source of the data, which is the TPB – the Metropolitan Planning Organization for the Washington, D.C. region. Regarding the Synchro file deficiencies, FCDOT along with its consultant have reviewed what was provided to VDOT and found that minor corrections were needed at three locations based on VDOT comments. New Synchro files will be sent, if requested, but the revised data will be posted to the County's website. While the revisions alter the seconds of delay slightly, the revisions do not change the conclusions and recommendations contained in the Study submitted to VDOT.

The County is establishing a Level of Service (LOS) E goal within the Transit Oriented Development (TOD) areas in the two plan amendments. It is important to note that this is a goal and not a standard as some of the intersections analyzed in the study do not currently operate at an acceptable level of service. However, based on the change in future land use and

supporting transportation recommendations, the County believes the proposed land use is an improvement over the existing Comprehensive Plan land use specifications in terms of maintaining a balance with the transportation network. As shown in the analysis that was submitted to VDOT, changing the land use and transportation network associated with Scenario G has less of an impact on the intersections than the COG Round 8.0 scenario (the County's current Comprehensive Plan in 2030). The County is implementing a tiered approach to address level of service for intersections where a LOS E cannot be attained.

The County did analyze the ramps for the Dulles Toll Road where they intersect with the local road network and those results are included in the Study submitted to VDOT. The Metropolitan Washington Airport Authority (MWAA) is currently conducting a study of the Dulles Toll Road including the ramps. Based on that study, further information will be available regarding the future conditions of the Dulles Toll Road. Additionally, the Dulles Toll Road mainline is a much larger area (15 miles in length) than the study area (5 miles along the Toll Road) from the Loudoun County line to I-66. Analyzing the Toll Road is above and beyond the scope of this study and given the currently on-going MWAA effort, FCDOT did not focus on the Toll Road. However, it is included in the modeling effort that accompanied this study.

Given the better balancing of the land use (Scenario G) with the transportation network and proposed mitigation measures, the on-going analysis of the Dulles Toll Road by MWAA, and the more detailed study that will look at the proposed enhanced street network and all intersections in the study area, FCDOT believes sufficient information has been provided and will continue to be provided.

It is the County's intention to proceed with public hearings on these proposed Plan amendments. The public hearings for Route 28 Station South Study are scheduled for October 30, 2013 at the Planning Commission and for December 3, 2013 at the Board of Supervisors. The public hearings for the Reston Master Plan Study are schedule for November 13, 2013 at the Planning Commission and December 3, 2013 at the Board of Supervisors. Responses to specific comments are below.

FCDOT Responses to the VDOT Comment Letter

Comment #1: Does the modeling reflect the trip generation from the proposed "densification" of Tysons Corner as well as the additional developments in Loudoun County (Dulles World Center) near the Route 28 station area? What REGIONAL background development is included? Per the Tysons Corner Studies, the Dulles Toll Road is over capacity. However, based on the freeway link model results contained in Tables 2.5 and 2.6 of Appendix 2 of the ***Transportation Study***, none of the freeway links on Route 28 or the Dulles Toll Road are expected to operate beyond their capacity (v/c > 1.0) in the morning or afternoon peak hour with the future land use proposed by the plan amendment (Scenario G). This inconsistency

with other studies indicates that not all regional development is considered within the travel demand model and that this study may not accurately represent the impact on these roads

RESPONSE #1: During the study period, the County updated the background land use forecast from the Metropolitan Washington Council of Governments (COG) from COG Round 7.2 to COG Round 8.0. The horizon year used was 2030. During this update Loudoun County demographers would have been able to account for the Dulles World Center approved rezoning. Any development assumed to be in place by 2030 by Loudoun County for Dulles World Center in the COG Round 8.0 forecasts is capture in model. After checking with Loudoun County, the demographers assumed 1,092 residential units and 1.4 million square feet of non-residential uses in TAZ 2385 in the COG Round 8.0 forecasts. The modeling does reflect the density associated with the Tysons Corner adopted land use plan of approximately 84 million square feet. This is consistent with the George Mason University (GMU) 2030 high land use forecast. The Town of Herndon's recent land use plan on the north side of the future Herndon Metrorail station is included in the background forecast. Please see page 5 of the Dulles Corridor Transportation Study submitted to VDOT.

The Toll Road volume from this study was checked against the Tysons Corner planning study. In the Tysons planning study submitted to VDOT several years ago, in support of the Comprehensive Plan amendment, there were 9,030 westbound PM peak hour trips just east of Hunter Mill Road. That included the 84 million square feet that was analyzed for the plan amendment and cited above. The COG Round 8.0 scenario has roughly the same number of trips (approximately 9,140 trips) that was in the Tysons study. Therefore, there is consistency between the Tysons planning study and our future base year, which is 2030 COG Round 8.0. In Scenario G, there were approximately 8,090 westbound PM peak hour trips just east of Hunter Mill Road. There are several factors to note, which could explain the difference between Scenario G compared to COG Round 8.0 and Tysons. The land uses have changed in the Reston and Route 28 Station South areas as well as the Town of Herndon's land use plan on the north side of the Herndon Metrorail station. The additional planned crossings of the Dulles Toll Road included in Scenario G will result in more trips remaining on local roads rather than using the DTR for short or medium distances. Additionally, road network connections in Scenario G, many of which run parallel to the Dulles Toll Road will further reduce trips that use the Toll Road. However, a reason for the reduction in trips on the Dulles Toll Road is the change in land use to Scenario G associated transportation network.

Comment #2: It appears that only a relatively small area was considered in the study. What is the downstream impact?

RESPONSE #2: The area under study was the area that is the subject of the plan amendments and was defined early in the process. It included Traffic Analysis Zones (TAZs) closest to where the new land uses are proposed. Since a majority of the impacts are anticipated in the study area that is the focus of the transportation study along with mitigation recommendations.

Additionally, the "gateway" intersections are considered the locations where the greatest impact from where the change in land uses can be expected. Those intersections are included in the transportation study. Additionally, the up and downstream traffic on the Dulles Toll Road should be addressed with the currently underway Metropolitan Washington Airport Authority (MWAA) study.

Comment #3: It should be noted that the queuing and level of service results may be worse than indicated in the studies due to the failing intersections and over-capacity links. SimTraffic may reveal gridlock throughout the network.

RESPONSE #3: Comment noted but this is a long term analysis to evaluate the Comprehensive Plan. This analysis was performed to see if the transportation network can reasonably support the proposed land use and forecasted increase in vehicle traffic associated with background development. When a rezoning or other development application is submitted, the County will be better able to evaluate queuing and storage lengths associated with a detailed analysis as land use types and locations are better known, in addition to driveways and other access points. The use of SimTraffic is one tool that can be used to evaluate, at a more detailed level, the transportation network. This tool, in addition to others, will be considered when the County starts the more detailed grid analysis.

Comment #4: Please provide narrative and explain how the job-to-household data on page 10 of the ***Transportation Study*** was obtained. It should be noted that the while the 4:1 ratio is still not satisfactory, it shows significant improvement over the existing scenario which is commendable.

RESPONSE #4: Staff's assessment of the development potential resulting from the current plan for the Reston study area is that it could result in a jobs/housing ratio of 8.8 jobs to every household. The proposed Plan improves that ratio greatly by achieving a ratio of 4.3 jobs per household. Similarly, the current plan for the Route 28 Station study area is 6.1 jobs per household which is improved with the proposed plan which can achieve a ratio of 3.4. Lower ratios are consistently achieved by Fairfax County as a whole, but transit station areas are rich in jobs and are areas where employment uses are planned to be close to transit.

Comment #5: To estimate the residential square footage, factors of 1000 and 1200 sf per dwelling unit were assumed for existing and 2030 scenarios, respectively (see pages 5 and 6 of the ***Corridor Study***). Please explain the inconsistency. These values may be applicable to multifamily dwelling units and are not suitable for town homes. Please explain.

RESPONSE #5: The factor of 1,000 square feet has been used for multi-family housing in other studies including Tysons Corner. After evaluating existing multi-family housing in the study areas it was determined that a 1,200 square foot assumption is more accurate when considering potential residential development throughout the study areas. However, this

change does not affect the transportation study. The numbers for existing development originate from residential unit counts. Applying the factor of 1,000 (or any other factor) does not change the residential unit count. The factor is applied for the purpose of assessing the bulk and mass of development. The factor becomes important in future scenarios because the residential unit count is extrapolated from square feet of development potential. Again, our assessment is that the factor of 1,200 square feet reflects the type of development expected in the study areas.

Comment #6: As mentioned on page 17 of the ***Transportation Study***, why was a 2005 model run used for model validation instead of a more recent year, and what year of traffic counts were used?

RESPONSE #6: The Dulles Corridor Study started in 2010 before TPB Model Version 2.3 was available for use. This version was not available until 2011 and was subsequently updated with a new base year of 2010 in July 2013. Significant analysis had been done when the new version of the model was released. Additionally, the County uses outputs from the TPB Regional model to feed into the County sub-model. The County sub-model was calibrated to the TPB Version 2.2 model. Calibrating to 2010, would have required switching over to the Version 2.3 model, which is still on-going. Furthermore, the Fairfax County Model was calibrated and validated for 2005, which comports with the legacy adopted TPB Model Version 2.2, which uses 2005 as its base year. Traffic counts for 2008-2010 were also used for model validation and to smooth out the raw outputs from the Model.

Comment #7: 2010 traffic counts increased by a growth rate of 1% per year were used at 21 of the intersections analyzed to bring them to 2013. Please provide an explanation for this growth rate.

RESPONSE #7: 24 intersections were included in the analysis. Traffic counts were collected in 2010 and supplemented with counts that were collected in 2008 at three locations (Sunrise Valley Drive and Frying Pan Road, Sunrise Valley Drive and Centreville Road, and Coppermine Road and Centreville Road). Attempts were made to obtain updated traffic counts from VDOT for these three locations but none were available. Given the downturn in the economy during this time, 2008-2010, it was decided that the 2008 counts were sufficient to use with the 2010 counts. At the time the study started, 2010 counts were current. During the scope meeting, held May 15, 2013 (an earlier meeting was held February 6), VDOT staff directed FCDOT to update the 2010 counts to 2013. FCDOT staff suggested using a 1% growth rate per year and that was agreed to at the meeting. Given the modest growth in the region due to the downturn in the economy, and the conditions that exist on the roads today, using a growth rate of 1% seemed appropriate.

Comment #8: Some of the 2030 volumes, more than expected, shown in Figures 4.9A-C of the ***Transportation Study*** decrease when compared to existing volumes. Please revisit / explain.

RESPONSE #8: Some intersections have improvements proposed, which could change traffic patterns and result in reduction in traffic volumes compared with the existing volumes. Roadway improvements could also divert traffic, leading to reduced traffic at some intersections.

Comment #9: Per the study, Wiehle Station is expected to open at the end of this year. The desired land use changes that this Comprehensive Plan Amendment hopes to affect will not occur for some time. As a result the demand on the roadway network will be greater initially while higher density mixed-use development is being established. How will this be addressed and will the transportation network suffer in the short term?

RESPONSE #9: The study evaluated the long term impacts of the proposed land use change with the entire Silver Line extension being operational, not just the first phase. The purpose of the Comprehensive Plan is to plan for the long term. Traffic impact analyses submitted with rezonings or other development proposals will address impacts in the shorter term. Also, there is proposed language being added to the Comprehensive Plan for both plan amendment study areas that says monitoring should occur every 5 years or as significant development occurs. Finally, there was a traffic impact analysis submitted with the Comstock development that evaluated interim years around the Wiehle Avenue-Reston East Metrorail Station. Those years are 2013, 2018, and 2023. This traffic study, along with others submitted for recently approved rezonings in the Reston area, is on file with VDOT and should help address some of the interim year concerns but the larger Dulles Corridor Study evaluated the long term impact of the proposed land use change.

Comment #10: A change from the current Level of Service standard of D to E is proposed within ½ mile of the planned rail stations (TOD areas). It appears that this standard will apply to the following 10 intersections. Three of these intersections do not meet this standard with the proposed mitigation measures. Knowingly establishing an unattainable standard does not address future traffic congestion. Please explain.

a. Fairfax County Parkway and Sunrise Valley Drive
b. Reston Parkway and Sunrise Valley Drive
c. Reston Parkway and Dulles Toll Road eastbound ramps
d. Reston Parkway and Dulles Toll Road westbound ramps
e. Reston Parkway and Sunset Hills Road
f. Reston Parkway and Bluemont Way
g. Wiehle Avenue and Sunrise Valley Drive
h. Wiehle Avenue and Dulles Toll Road eastbound ramps
i. Wiehle Avenue and Dulles Toll Road westbound ramps
j. Wiehle Avenue and Sunset Hills Road.

RESPONSE #10: The level of service (LOS) E is a goal proposed for the transit station areas. It is not a standard. It is not the intent of Fairfax County to accept a lower LOS where reasonable mitigation can be implemented. However, reasonable mitigation must be balanced by the fact that this is an emerging urban area that is trying to accommodate all users of the transportation system, and not just the automobile. Additionally, there is a tiered approach that is being implemented, recognizing that in some cases it is either not feasible or desirable to widen an intersection to achieve the LOS E goal. This does not mean improvements will not be expected. Improvements at a nearby intersection or adding a new connection could achieve the LOS E goal at the problem intersection rather than just adding turn lanes or through lanes. The tiered approach that is being added to the plan is as follows:

In the development review process, mitigation of problem locations should follow the following sequence:

1. First, determine whether addition increased operational efficiency is achievable without decreasing pedestrian walkability and safety. The widening of roads by adding exclusive turn lanes and/or through lanes will not be desirable in most cases since it will increase street widths at intersections and therefore work against an attractive environment for pedestrians. In lieu of additional lanes, it is preferable to add links to the street grid where applicable with the goal of promoting the build out of the grid of streets. This strategy creates additional diversionary paths for vehicles and decreases the traffic at problem locations in the vicinity of a proposed development.
2. When the first step is not achievable, decrease future site-generated traffic by (1) changing the mix of land use within the parameters of the applicable land use guidelines (e.g., replacing office or retail uses with residential use), (2) increasing transit use through provision of additional and improved services, and/or (3) optimizing the application of TDM with measures that might include greater transit use, walking and bicycling.
3. If the measures outlined in the previous two steps do not provide adequate improvement of LOS, a development proposal or phase future of development may need to be conditioned on funding or completion of offsetting improvements. Financial contributions of significant value dedicated to addressing deficiencies in the TSA may be considered as an offsetting improvement. These contributions may not be used as a credit against other contributions toward off-site transportation improvements.

Additionally, there is still a more detailed study that will be initiated at the conclusion of this planning process that will look more closely at the grid of streets being proposed. During this study, the street network will be evaluated more closely and the County DOT is hopeful that the failing conditions shown in this study can be remedied. The County will share the results of this detailed study with VDOT. It should be noted that the traffic conditions will be monitored so issues can be addressed before they become a major problem.

Comment #11: The Tiered Approach on page 20 of the ***Transportation Study*** indicates that signal optimization would be the first step for mitigation, but for 2030 Scenario G, it appears that geometric improvements were considered before signal optimization. Please explain.

RESPONSE #11: Geometric improvements considered as a result of previous scenario runs were included with Scenario G. The improvements were considered additive during this process. So, if an improvement was needed to address a problem in a previous scenario where mitigation measures were considered then it was added as a base condition to the next scenario that was run. Signal optimization was the first step for mitigation in Scenario G. Geometric improvements were considered if the optimization could not lead to satisfactory results.

Comment #12: For Full Mitigation of Scenario G on page 67 of the ***Transportation Study***, signal adjustments were considered as an improvement. Please explain what FCDOT considers signal adjustments in addition to optimization (Signal optimization has already been considered as an improvement).

RESPONSE#12: Signal adjustments could involve changes other than optimizing phases and offset, such as overlapping phases, split phases, etc.

Comment #13: The trip reduction assumptions within the TOD districts seem to be generally consistent with professional studies of TOD trip generation. What assumptions were used regarding trip reduction in the non-TOD portions of the study area? Research suggests that the extent of reduction in trip making declines with distance from transit stops and distance from the central business district.

RESPONSE #13: FCDOT would concur with the research that suggests that vehicle trip reductions decline the further one is from transit stations or the central business district. However, our process did not involve direct trip reduction assumptions in the study area. The trip generation rates used in this study reflect those in the TPB Version 2.2 regional model and were thus derived from regional household travel surveys that reflect average travel behavior in the entire TPB region. Household survey records supporting the model trip generation rates were taken from all area types in the region, including inside TODs, inside the CBD, and in non-TOD areas. A process was employed to allocate trips among TOD and non-TOD areas within each applicable TAZ and our mode choice process allowed that non-SOV mode shares within a TOD area would be higher than "typical" non-SOV mode shares. The result of our process was lower SOV trip rates in TOD areas than non TOD areas, but it was an output rather than an input.

Comment #14: Trip reduction goals for the project are shown on page 20 of the ***Corridor Study***. What are the final trip reduction percentages? Please provide a table showing how much each factor (TDM, TDP, TOD, internal capture, pass-by) contributes to trip reductions.

RESPONSE #14: Trip reduction goals from Table 5 on page 20 of the ***Corridor Study*** were not taken directly into the model as model inputs (such as trip rates) in the modeling process. During the transit analysis, a post-processing procedure was used to estimate transit shares in the TOD areas, based on TCRP 95 Chapter 17 Transit-Oriented Development. As discussed above, the trip rates in the regional model reflected average travel behavior of travelers living in both TOD and non-TOD areas. Segregating trip reduction factors by TDM, TDP, TOD, internal capture, and pass-by, such as done in traffic impact analysis, is not possible. The model considers trip reduction factors based on availability of transit and the location, type, and density of land uses assumed in the model in addition to other factors. Providing this type of breakdown is typically done during a rezoning with a detailed site plan using the ITE Trip Generation Manual as the basis for reductions.

Comment #15: The trip reduction goals shown in Table 5 on page 20 of the ***Corridor Study*** are lower than those used in the Tysons Corner studies. Concerns remain as to whether these are achievable. Please explain.

RESPONSE #15: Scenario G contains less density than the Tysons plan. It is estimated that this will result in slightly lower internal single occupant peak hour vehicle trip rates in the Dulles-Reston Corridor. In addition, the Tysons plan contains a larger number of bus routes serving the station areas than the Dulles-Reston Corridor. This will result in a slightly lower transit use in the Dulles-Reston Corridor compared to Tysons. For these reasons lower trip reduction goals were established for the Dulles-Reston Corridor. As Table 5 shows, the baseline already demonstrates the trip reduction in Fairfax County due to the transit use, peak hour spreading, and existing TDM activities. The TDM goals are only 5 to 15 percentage points higher than the baseline and are believed to be achievable considering the various policies and programs that the County puts in place for development applications, including Transportation Demand Management (TDM) and Land Use/Transportation Balance.

Comment #16: It is unclear how the anticipated transit ridership numbers reported throughout the ***Transportation Study*** relate to one another, how accurate they are and whether the metro will be able to accommodate the anticipated riders. Tables 4.1 – 4.5 report various types of trips and their anticipated quantity, Tables 4.6 and 4.7 report percentages of types of trips, Table 4.8 reports total transit trips and Table 4.12 reports transit shares by station. However, none of these numbers or percentages clearly correlates to one another. Furthermore, the text on page 70 indicates that 4300 passengers is the maximum load for the six-hour peak period, however, when compared to the total Transit Trips in Table 4.8 of 13,879, this is only 31 percent of the total. Please clarify.

RESPONSE #16: Table 4.1 – 4.8 report trip-making characteristics in the study area, while Table 4.12 only deals with Metrorail station area trips (quarter mile and half mile areas around stations), which are a subset of transit trips in the study area. Specifically, total transit trips in the study area include transit trips in all transit submodes such as Metrorail, bus, and commuter

rail. The maximum load on page 70 represents the maximum loading volumes for Metrorail between the Reston Town Center and Wiehle-Reston East stations for the six-hour peak period, and similar to the traffic volume on a roadway link, it includes trips from both inside the study area and outside the study area. This maximum load number is not comparable to the total transit rips in Table 4.8

Comment #17: Please check the Synchro files and make sure that the signal phasing for all intersections is correct. For example, the signal phasing for Sunrise Valley Drive/Reston Parkway (#7) does not appear to be correct for all scenarios. The Sunrise Valley Drive approaches should be split phased.

RESPONSE #17: The Synchro files have been checked and were determined to be correct. The intersection of Sunrise Valley Drive and Fairfax County Parkway will be grade separated in Scenario G. The northbound right turn movement and southbound right turn movement were coded as permitted, not protected phases for the grade-separated intersection #7. Upon further investigation, it appears that a change to protected phases would not affect the analysis results significantly in terms of queue lengths, LOS, and delay. The Synchro printouts and files will be included in the response, as a separate attachment, for VDOT to review.

Comment #18: At Sunrise Valley Drive/Frying Pan Road (#1), the NB/SB through volume is low (less than 100 vph) for the future 2030 scenarios. Are two through lanes needed?

RESPONSE #18: The Comprehensive Plan shows two northbound and two southbound through lanes. The lanes are not part of the Scenario G improvements. The Comprehensive Plan where the Sunrise Valley Drive extension is shown (south of Frying Pan Road) will be reviewed as part of Fairfax County's new Fairfax Forward Process. This has replaced the Area Plans Review Process, which was used by the County to evaluate the Comprehensive Plan every five years. The County is currently moving forward with reviewing the Dulles Suburban Center, which is the location of the proposed Sunrise Valley Drive extension. During that time the road can and will be reevaluated; however, as part of the Fairfax County DOT's Countywide Transit Network Study, this road may be the location where the County envisions high quality transit serving the area.

Comment #19: The Synchro files for 2030 Scenario G show four receiving lanes on NB Centreville Road at Sunrise Valley Drive, and then the 4th lane is dropped. What is the 4th lane for?

RESPONSE #19: The Synchro files were reviewed for 2030 Scenario G and we found three receiving lanes coded on NB Centreville Road at Sunrise Valley Drive. At Centreville Road and Coppermine Road there are four northbound receiving lanes. Perhaps the comment is meant for this intersection? Four receiving lanes exist at this intersection today. The fourth lane becomes a right turn lane as Centreville Road approaches Sunrise Valley Drive.

Comment #20: Compared to the 2030 COG Round 8 scenario, the AM and PM intersection entering volumes for 2030 Scenario G do not change consistently. For example, for the following intersections the AM volume decreased, but PM volumes increased: Sunrise Valley Drive/Frying Pan Road (#1), Wiehle Avenue/DTRWB ramps (#19) and Hunter Mill Road/Sunrise Valley Road (#21).

RESPONSE #20: The volumes were checked against the ones in the study. This review showed less overall volume for AM and more volume for PM at intersection #1 for Scenario G compared to the 2030 COG Round 8 demand model forecasts. But, the volumes increase on almost all the movements where the improvements were added in Scenario G, EBT, EBL, WBR, and WBT. SBR volume decreases as the result of the pattern change. Pattern changes also result in less EB and SB traffic at Hunter Mill Road/Sunrise Valley Road (#21) during AM peak for Scenario G. For Wiehle Avenue/DTR WB ramps (#19), the analysis showed that fewer vehicles exited the WB off-ramp during AM peak and led to reduction in the volume for Scenario G.

Comment #21:. Please check all volume inputs in the Synchro files. For example, for Scenario G in the PM peak hour at Centreville Road/Dulles Toll Road WB ramps the SB volumes are shown as 0

RESPONSE #21: The volume on southbound Centreville Road as it approaches the Dulles Toll Road westbound ramps has been corrected. After correction, the intersection LOS and seconds of delay change, but remain satisfactory, after optimization. The Synchro printouts and files will be included in the response, as a separate attachment, for VDOT to review. The study will be updated and posted to the County's website.

Comment #22: On page 22 of the ***Transportation Study*** it is stated that "Synchro results were averaged…" What was averaged? Synchro does provide MOEs per lane group, approach, and the whole intersection. Please explain the methodology on how the average was derived, and its relevance.

RESPONSE #22: All the intersections were categorized into three groups: gateway intersections, non-gateway intersections, and all intersections. The intersection delay numbers were averaged (volume-weighted average) across the intersections within each group. For the volume-weighted average calculation, the intersection delays were averaged using the intersection volume at each intersection as a weight. So, the higher an intersection's volume, the more contribution it makes to the final results of the average. In contrast, a simple average is to assume every intersection plays an equally important role in the average calculation, which was not done as not every intersection should be treated equally.

Comment #23: Compared to 2013 existing conditions, some intersections (#8, #12, #13 and #23) for 2030 COG Round 8 scenario have increased volumes but decreased delays with the same lane configurations. Please explain.

RESPONSE #23: Signal timing plans (phases, coordination, etc.) were optimized and may improve the performance measures.

Comment #24: A comparison between 2030 COG Round 8 and Scenario G results should be provided in order to support the statement that Scenario G performs better than the COG Round 8 scenarios on the transportation network (included in 4.6 Summary and Next Steps).

RESPONSE #24: Intersection level results for COG Round 8 and Scenario G are summarized respectively in Tables 4.12-14 and Tables 4.15-17, and discussed respectively on pages 44 and 57. A comparison of Scenario G results with COG Round 8 results was also made on page 57, which supports the statement in Section 4.6. A table with direct comparison could facilitate an easier understanding of the discussion and summary and this noted for further studies that will be submitted to VDOT.

Comment #25: A number of signalized intersections within the study area were included in the Synchro analysis but are not included in the summary tables and figures. It appears that the decision to exclude these intersections was based on an urban local functional classification. Please clarify why these intersections are not included within the text, tables and figures of the study.

RESPONSE #25: The starting-point Synchro files were obtained from VDOT. The intersections summarized and tabulated in the report were deemed locally significant as part of the study process and were locations where intersections traffic counts were taken.

Comment #26: How would levels of service on the toll road and toll road ramps be impacted under “COG Round 8” and “Scenario G?”

RESPONSE #26: Levels of Service are provided for the Dulles Toll Road ramps eastbound and westbound where the Dulles Toll Road intersects Hunter Mill Road, Wiehle Avenue, Reston Parkway, Fairfax County Parkway, and Centreville Road. They are located in Appendix Attachment #1 of the Transportation Study submitted to VDOT for the existing conditions, Round 8, and Scenario G.

MWAA is currently conducting a study of the Dulles Toll Road, which the County and VDOT will be able to review. Evaluating operations and making associated recommendations on the Toll Road is above and beyond the scope of the Dulles Corridor Study.

Comment #27: Table 5 of the ***Corridor Study*** contains the trip reduction goals for the study area. Does Fairfax County have a plan in place to reach these goals? If so, please provide a reference to the appropriate plan in the report and discuss how progress towards these goals will be monitored. A menu of specific Travel Demand Management measures that are envisioned to reach these trip reduction goals should be included in the Comprehensive Plan.

RESPONSE #27: Fairfax County does have a plan to reach these goals. These plans are generally established during the rezoning process when greater detail is submitted with a site plan. Monitoring of the TDM program is also established during the rezoning process. However, the following is from the Transportation Demand Management section that is being proposed for both Comprehensive Plan amendments.

> Transportation Demand Management (TDM) refers to a variety of strategies aimed at reducing the demand on the transportation system, particularly to reducing single occupant vehicles during peak periods, and expanding the choices available to residents, employees, and visitors. Examples can be found in the County's Policy Plan. The result is a more efficient use of the existing transportation system. TDM is a critical component in achieving the Plan's goal of land use and transportation balance. The objective of a successful TDM program for the TSAs is to reduce the number of single occupant vehicle trips. These reductions are based on Institute of Transportation Engineers' (ITE) trip generation rates and are to fall within the ranges shown in the TDM Goals Figure 18 Figure 1 below (*note. Figure not included the response). These goals are the ultimate objective once rail is operational and public transit is in place. The recommendations are for reductions of at least 35 percent % for the areas within ¼ mile of the Metrorail stations and at least 30 percent % for the areas between ¼ and ½ mile from the Metrorail stations.
>
> A large component of TDM will be the implementation of formal TDM programs by the various stakeholders such as employers, apartment owners and homeowners associations within the TOD Districts. At a minimum, development proposals should include the following elements associated with their TDM program in addition to the minimum goals stated above:
>
> 1. Indication of the trip reduction goals to be achieved at each phase of development and the measures to be used in the program.
>
> 2. TDM implementation plans with monitoring provisions.
>
> 3. Provision of remedies if a TDM fails to achieve its objective within a reasonable period of time, including restriction on the timing for future development.

This is the location in the Comprehensive Plan where reference is made TDM. http://www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/transportation.pdf. Objective #5 in the link shows the TDM measures that applicants can use to create a TDM program that will help them establish the trip reduction goals that are being proposed in the study area.

Comment #28: Considering the proposed land uses (specifically the 1,632,657 sf retail) shown in Table 1 of the ***Corridor Study*** and the location of the Rt 28 Station Area within a suburban setting with limited retail opportunities, VDOT is concerned that the actual mode split

estimation may be optimistic. A concern remains that the external trip count into this area may be much higher, and those trips will be via automobile

RESPONSE #28: We believe that this comment is meant to be towards the Reston study area and not the Route 28 plan amendment area, given the amount of retail that was cited in the comment. Our response, that will follow, is meant to address the entire study area and not just the Route 28 or Reston plan amendment areas. Given this assumption, this is an emerging urban area where increased density is being proposed and thus not all the retail being proposed will be destination retail. The new retail, being recommended in the plan, is more support retail except for the Reston Town Center area, which is considered a destination retail area. However, the model does not differentiate between destination retail and support retail. The retail as an employment category is a variable in the trip attraction calculation, especially for shopping trips. So, if there is a large cluster of retail in one zone, the model will send a large number of shopping trips (as well as work trips) to that particular zone. Where those shopping trips come from depends on travel time, and the model assumes a shorter trip length for shopping trips (than work and other trips) and allocates shopping trips accordingly, presumably the nearest retail locations get the most. The model did take into account the study area and surrounding land use patterns when assigning trips to the network and to retail areas. While we understand VDOT's concern with the type of retail and the trip characteristics associated with it, the County does not have the ability to state what types of retail can go where, at least at the plan level.

Comment #29: The entire study area should be modeled as one single network. It is currently shown as five separate arterials without the Dulles Toll Road. It is imperative that the Dulles Toll Road (DTR) is included in all modeling as a single integrated simulation system. As mentioned in comment 1, the cumulative impact of other development and travel in the area adjacent to those considered in this Comprehensive Plan Amendment must be included to accurately understand travel in the study area.

RESPONSE #29: The entire area was modeled as one network including the Dulles Toll Road. That is what went into the County sub-model and those results plus some post-processing were used to run the Synchro analysis. The model did include development from the surrounding area and surrounding local jurisdictions that was part of the output results.

Comment #30: Furthermore, and in accordance with the recently adopted VDOT's Traffic Operations Analysis Tool Guidebook (TOATG), Synchro is not the preferred tool for analysis of integrated networks. Use of VISSIM or CORSIM is currently required.

RESPONSE #30: The level of detail of the analysis, conducted for this study, goes beyond the typical higher level planning analysis. However, when the County initiates a more detailed analysis of the area, use of the tools mentioned above, or similar ones, will be considered.

Comment #31: All components of the freeway system (basic freeway segment, weave and merge / diverge) should be analyzed along with the connecting roadways so that the operational functionality of DTR vis-à-vis street network is known. The operation of the surface street network, as it is currently shown, without the DTR is inadequate in predicting the future traffic conditions in this area.

RESPONSE #31: MWAA is currently conducting a major study of the Dulles Toll Road, in which the County and VDOT will participate. This study includes an investigation into distance-based tolling and congestion pricing. If the study recommends associated changes to the tolling system, it will result in changes in the peak hour DTR volumes. The Dulles Corridor Study evaluated the on/off ramps of the Dulles Toll Road at their intersections with the local street network. This information, along with the other information in the transportation study, provides adequate detail to determine the effects of the proposed change in land uses in the study area. However, evaluating operations and making associated recommendations on the Toll Road is above and beyond the scope of the Dulles Corridor Study.

It should be noted that the change in the Comprehensive Plan results in fewer vehicle trips (using the ITE Trip Generation Manual) when compared against the currently adopted Comprehensive Plan land use and thus should have a beneficial effect on the surrounding road network, including the Dulles Toll Road.

Comment #32: The Synchro printouts in Attachment 4 of the ***Transportation Study*** do not match many of the tables and figures within the report for Scenario G. Observations and conclusions reported in this memo reflect the information from the Synchro printouts where there is a discrepancy. Please verify all volume inputs in Synchro. For example, Scenario G, PM Peak, the southbound Centreville Road approach at the Dulles Toll Road westbound ramps is entered as 0 vehicles in Synchro, but should be 1,664 vehicles

RESPONSE #32: The Synchro printouts could benefit from some additional labels to reduce possible confusion. The order of the Synchro printouts in the report is: 2013 AM, 2013 PM, Round 8 AM, Round 8 PM, Scenario G Before Optimization AM, Scenario G Before Optimization PM, Scenario G After Optimization AM, and Scenario G After Optimization PM. Each aforementioned scenario includes 48 pages as Synchro printouts. See response to Comment #21.

Comment #33: Traffic counts for the 24 study intersections were not provided; therefore, none of the data used in Synchro based on the counts can be confirmed. Were the volumes independently verified by the analyst?

RESPONSE #33: The 2008-2010 factored traffics count to 2013 were provided. They were factored up based on the May 15, 2013 scoping meeting held with VDOT. If VDOT would like

the 2008-2010 traffic counts, they can be provided, once a request is made. The volumes were verified by Fairfax County and its consultant for reasonableness.

Comment #34: Default values were used for a number of data entries including: lane widths (12 feet), grades (0%) and heavy vehicle percentages (2%). Please confirm that these values are appropriate for the Study Area.

RESPONSE #34: The starting-point Synchro files were obtained from VDOT. These settings were inherited from these files and were not changed. These values, however, are deemed acceptable for the study area.

Comment #35: Peak hour factors of 1.0 were used for nearly all analyses. Please justify the use of 1.0 or modify the analyses appropriately.

RESPONSE #35: Most of the intersections in the horizon year (2030) of the study would be at capacity. The area is already experiencing long peak periods due to peak spreading; therefore, a peak hour factor of 1.0 is appropriate for the planning study.

Comment #36: Minimum green times are insufficient to accommodate pedestrians wishing to cross. Pedestrian phasing / timings must be included in all 2030 Synchro models at all pertinent intersections. This change will significantly affect the levels of serve at a number of intersections.

RESPONSE #36: Comment noted. This will be factored into the more detailed study, at a level that will allow for heavy pedestrian crossings where appropriate, that will be initiated at the conclusion of the plan amendment process.

Comment #37: Bus blockages were entered for the intersection of Centreville Road and Sunset Valley Road but no other intersections. A consistent approach to the use of the bus blockage input should be applied.

RESPONSE #37: The starting-point Synchro files were obtained from VDOT. These settings were inherited from these files and were not changed. However, changing the assumptions for Centreville Road and Sunrise (not Sunset) Valley Road should not have a material impact on the results.

Comment #38: Please check all the Synchro files and ensure that they are free of errors, particularly fatal errors which prevent the user from running SimTraffic simulations. Several issues were noted with inconsistencies with input lanes and receiving lanes.

RESPONSE #38: SimTraffic simulation has more strict coding standards than Synchro (related to lane alignment details and other microsimulation parameters). These parameters

should not have any impact on LOS analyses. If any results (even qualitative results of congestion) are to be taken from SimTraffic, it would require additional parameter calibration and results validation against field conditions. The Synchro analyses conducted in this study were not intended to be used with SimTraffic. SimTraffic or another simulation type of software will be considered when the more detailed analysis of the street network initiated following the conclusion of this planning study.

Comment #39: Considering the proposed land uses (specifically the 1,632,657 sf retail) shown in Table 1 of the ***Corridor Study*** and the location of the Rt 28 Station Area within a suburban setting with limited retail opportunities, VDOT is concerned that the actual mode split estimation may be optimistic. A concern remains that the external trip count into this area may be much higher, and those trips will be via automobile.

RESPONSE #39: Duplicate comment. Addressed under comment #28.

Comment #40: Considering the proposed land uses (specifically the 1,632,657 sf retail) shown in Table 1 of the ***Corridor Study*** and the location of the Rt 28 Station Area within a suburban setting with limited retail opportunities, VDOT is concerned that the actual mode split estimation may be optimistic. A concern remains that the external trip count into this area may be much higher, and those trips will be via automobile.

RESPONSE #40: Duplicate comment. Addressed under comment #28.

Comment #41: For existing conditions, the intersections of Sunrise Valley Drive/Frying Pan Road, Frying Pan Road/Centreville Road and Centreville Road/Coppermine Road are included in the Rt. 50 Synchro files but not included in the Dulles corridor Synchro files. It appears that the coordinated cycle length for the intersections of Centreville Road are different in these two files. Please include all intersections analyzed in this study in one file for each peak hour. This also applies to the 2030 COG Round 8 scenario. Cycle lengths should be consistent.

RESPONSE #41: Separate files of the Synchro models that cover different corridors of the study area were sourced from VDOT and used for analyses of the existing conditions and Round 8 Scenario. Scenario G consolidated these files. For existing conditions and Round 8 scenarios, Rt. 50 Synchro files were just used for the analysis of the three intersections. An integrated file for existing and Round 8 scenarios would facilitate consistency among scenarios.

Comment #42: In the Synchro files, please check lane configurations thoroughly and code turn bays at intersections appropriately to make the number of lanes on roadway segments reasonable. For example, 1. For Scenario G, no turn bays are coded for the WB approach at Frying Pan Road/Sunrise Valley Drive and the WB segment is shown as 6 lanes which doesn't

seem reasonable; 2. Centreville Road between the ramp intersections at Dulles Toll Road has one NB lane and three SB lanes.

RESPONSE #42: The Synchro lane configurations at the intersections were consistent with Figure 4.9A in the report. Turning bays are constrained by the right-of-way and proposed improvements. Assumptions were applied if no detailed information about the lengths of the turning bay were provided in the Synchro files.

Comment #43:. Some of the proposed cycle lengths are 126 and 162 seconds. Please use cycle lengths that are multiples of 10 or 5.

RESPONSE #43: Commented noted. The detailed analysis that will be initiated at the conclusion of the plan amendment will use multiples of 5 or 10 for cycle lengths.

Comment #44: Clustered Intersections with a single controller such as Sunset Hills Road/Hunter Mill Road (#24), and Dulles Toll Road WB On-Ramp/Hunter Mill Road (#23) should be analyzed as such in all 2030 scenarios.

RESPONSE #44: Comment noted. No change expected.

Comment #45: Please address the potential impacts of the suggested MWAA ramp terminal intersection improvements not being implemented. How likely are these improvements? How would alternate mitigation measures be developed to help mitigate the additional impacts?

RESPONSE #45: The MWAA improvements for the ramps at the Dulles Toll Road were taken from a powerpoint presentation in which ideas for improvements at the ramps were being considered. FCDOT staff included them in the analysis because they can be implemented either through restriping or minimal improvements on the ramps or the other roads that the ramps intersect with. The improvements are to enhance safety and assist with circulation and throughput from the ramps to the surrounding road network. Therefore, the likelihood of implementing these improvements is quite high. MWAA is currently conducting an analysis of the Dulles Toll Road that is also evaluating the ramps. Based on recommendations from that analysis, the improvements in the Dulles Corridor Study could change. However, if the MWAA ramp improvements are not implemented, conditions on the ramps could be worse, but the street network, not including the Dulles Toll Road, would not be unduly impacted.

Comment #46: Both studies propose to accept LOS F for some intersections based on the rationale of providing a transportation system which is balanced and supportive of transit, pedestrians and bicycles. This is an important principle, but the huge scope and long development time-frame of the planned development justify planning for full mitigation of Scenario G. It is not clear how the road improvements would preclude a bike and pedestrian friendly environment. Full mitigation to LOS E should be included in the Comp Plan. If a

decision is made to ignore the possible future need for right of way reservation for some of the improvements, it may be difficult to reverse that decision in the future if the need for additional right of way becomes apparent.

RESPONSE #46: It is not the intention of FCDOT to accept a LOS F, where reasonable mitigation measures can be implemented, while still balancing the need of all modes of transportation. As described in the response to comment # 10, the proposed plan text contains a "tiered approach" to achieving LOS E at affected intersections. The purpose of the tiered approach is to ensure that approaches other than just widening intersections are considered and utilized where possible. It is the intent of FCDOT to try and meet the LOS E goal set out in the Comprehensive Plan. Finally, additional study that will be initiated at the conclusion of this planning study, will look at the grid of streets network to see what other approaches can be used to meet the LOS E goal and still have an environment that is safe and usable for all modes of transportation. Please refer to the response to comment # 10.

Comment #47: As previously mentioned, the Synchro printouts in Attachment 4 do not match many of the tables and figures within the report for Scenario G. Please update the appropriate figures and tables or Synchro analysis, depending on which item is correct.

RESPONSE #47: The Synchro printouts could benefit from some additional labels to reduce possible confusion. The order of the Synchro printouts in the report is as follows: 2013 AM, 2013 PM, Round 8 AM, Round 8 PM, Scenario G Before Optimization AM, Scenario G Before Optimization PM, Scenario G After Optimization AM, and Scenario G After Optimization PM. Each aforementioned scenario includes 48 pages as Synchro printouts.

Comment #48: Tables 2.4 and 2.5 of the ***Transportation Study*** are the same. Table 2.4 should show the net change in land use from Existing to Scenario G.

RESPONSE #48: Comment noted. A revised study with this change will be posted on the County's website. The table did not affect the analysis.

Comment #49: In Figure 4.9B at Intersection 9 of the ***Transportation Study***, the westbound right turn lane should not be shown as proposed as it is also shown as existing on Figure 4.2B.

RESPONSE #49: Comment noted. This did not affect the analysis. Figure 4.9B can be corrected as indicated and a revised study with the change posted on the County's website.

Comment #50: Figure 4.9A of the ***Transportation Study*** shows two SB thru lanes for Rt 28 and 62 VPH in the a.m. and p.m. peak hour respectively. Please provide a better lane utilization to assist with the more than 3000 VPH right turn volume.

RESPONSE #50: We believe this comment is directed at Sunrise Valley Drive as it approaches Frying Pan Road in the Route 28 Station South study area and not Route 28 itself. This was looked at more closely with a detailed analysis conducted for the Route 28 Station South plan amendment area. To assist with the high number of right turn vehicles, FCDOT is recommending another connection from Sunrise Valley Drive to Frying Pan Road, referred to as the River Birch extension. This will help reduce the right turn volume on Sunrise Valley Drive headed toward Route 28 and provide a better distribution of traffic. The results of that study (The Route 28 Detailed Grid Analysis) are still being looked at and will be folded in the detailed grid analysis study that will follow the conclusion of this planning study. The Route 28 Detailed Grid Analysis did indicate that the River Birch extension was beneficial to the area and has thus been included as a recommendation in the proposed Comprehensive Plan for this area. Additionally, the County did look at changing one southbound through lane on Sunrise Valley Drive to a right turn lane. This would create three right turn lanes. While this change improves the intersection by about 40%, the County will consider other improvements as it progresses with the detail study of the Reston and Route 28 grid of streets. Changing the striping of the lanes was looked at solely to address VDOT's comment.

Comment #51: In Table 4 of the ***Corridor Study*** McNair Farms Drive should be replaced with a different example as it is not in Land Unit A.

RESPONSE #51: McNair Farms Drive is not in the Land Unit A area but the extension across Centreville Road into Land Unit A is referred to as the McNair Farms extension, which is what Table 4 is referring to. However, this example has been removed from the final proposed plan text. Please see page 14 of the attached plan text to the staff report. http://www.fairfaxcounty.gov/dpz/comprehensiveplan/amendments/st09-iii-ds1ands07-iii-up2ands09-iii-up2.pdf.

Comment #52: While the County finds that the transportation network will generally perform to higher levels of service at most intersections under Scenario G with optimization, the report points out that one congestion metric, vehicle hours of congestion, will increase slightly. Even if the inconvenience to automobile travelers is accepted as part of the price of creating more walkable transit-supportive communities, however, there could be significant concerns arising from the fact that emergency vehicles and rubber-tired transit or paratransit vehicles could be hampered by gridlock. The County should consider the ability to effectively serve these areas with EMS and transit.

RESPONSE #52: Comment noted.

Comment #53: The overall intersection level of service for the proposed land use scenario (Scenario G) after optimization and mitigation, is below the proposed standard (E for TOD, D others) at the following intersections (overall delay is also indicated). Each of these locations is

listed in Table 4.18 as needing further improvements that are not recommended. Left unaddressed the delay experienced at the intersections will impact not just the intersections, but the roadway links and ripple through the roadway network, creating gridlock. How will the deficiencies be addressed at these intersections?

a. Sunrise Valley Drive and Frying Pan Road – PM (174.4)
b. Centreville Road and Sunrise Valley Drive – PM (81.0)
c. Centreville Road and Dulles Toll Road EB ramps – AM (89.0)
d. Reston Parkway and Sunset Hills Road – AM (150.6), PM (217.7)
e. Reston Parkway and New Dominion Parkway – PM (86.0)
f. Wiehle Avenue and Sunrise Valley Drive – AM (147.7)
g. Wiehle Avenue and Sunset Hills Road – AM (146.3), PM (272.2)
h. Hunter Mill Road and Sunrise Valley Road – AM (258.0), PM (149.8)
i. Hunter Mill Road and Dulles Toll Road WB ramps – AM (67.8), PM (108.7)
j. Hunter Mill Road and Sunset Hills Road – AM (63.6), PM (65.5)

RESPONSE #53: These intersections and the ones where the LOS E goal is acceptable will be evaluated in a more detailed grid of streets analysis that will follow the conclusion of this planning study. The County will be trying to balance the need of all users of the transportation system when conducting the more detailed study.

Comment #54: Comparison of the COG Round 8 and Scenario G Synchro analyses, indicates that the overall intersection level of service degrades at the following intersections. It should be noted that the COG Round 8 analysis results do not include mitigation measures and the Scenario G results do. Comparing COG Round 8 without mitigation measures to Scenario G with mitigation measures is misleading because the levels of service reported for COG Round 8 appear worse than they would be with mitigation measures and downplays the level of degradation in delay and level of service expected when considering the Scenario G land use.

Table 4. Comparison of COG Round 8 and Scenario G AM Peak Hour LOS and Delay

Intersection – AM Peak	#	COG Round 8		Scenario G	
		Delay	LOS	Delay	LOS
Centreville Rd/Dulles Toll Rd EB Ramps	5	42.5	D	89.0	F
Fairfax County Pkwy/Spring St	10	53.3	D	65.2	E
Reston Pkwy/Sunset Hills Rd	14	148.8	F	150.6	F
Wiehle Ave/Sunrise Valley Dr	17	87.4	F	147.7	F
Wiehle Ave/Sunset Hills Rd	20	79.8	E	146.3	F
Hunter Mill Rd/Sunrise Valley Dr	21	77.0	E	258	F
Hunter Mill Rd/Dulles Toll Rd WB Ramps	23	31.3	C	67.8	E

Table 5. Comparison of COG Round 8 and Scenario G PM Peak Hour LOS and Delay

Intersection – PM Peak	#	COG Round 8		Scenario G	
		Delay	LOS	Delay	LOS
Centreville Rd/Dulles Toll Rd EB Ramps	5	26.4	C	39.2	D

Reston Pkwy/Dulles Toll Rd EB Ramps	12	13.6	B	33.8	C
Reston Pkwy/Sunset Hills Rd	14	211.6	F	217.7	F
Reston Pkwy/New Dominion Pkwy	16	73.2	E	86.0	F
Wiehle Ave/Sunset Hills Rd	20	183.5	F	272.2	F
Hunter Mill Rd/Sunrise Valley Dr	21	56	E	149.8	F
Hunter Mill Rd/Dulles Toll Rd WB Ramps	23	68.4	E	108.7	F
Hunter Mill Rd/Sunset Hills Rd	24	48.2	D	65.5	E

RESPONSE #54: The COG Round 8 scenario does include mitigation measures. They are the Comprehensive Transportation Plan improvements. This scenario includes development that is expected to occur by 2030 under the currently adopted Comprehensive Plan and thus mitigation measures have already been established and are included in the Comprehensive Plan. With the proposed land use scenario, the County did mitigate the impacts as this is a change to the Comprehensive Plan and thus warranted additional transportation mitigation that is not currently in the Comprehensive Plan. The tables included by VDOT in the comment, while accurate, are also misleading as the change to Scenario G and associated mitigation measures did results in improvements at other intersections not shown in VDOT's Table 4 or 5. Additionally the column shown for Scenario G uses the results from before signal optimization. Signal optimization is a mitigation measure and should have been reflected in the table.

Comment #55: Based on the non-freeway link results contained in Appendix 2 of the ***Transportation Study***, there are several roadway links within the study area that are expected to operate beyond their capacity with the proposed plan amendment (Scenario G). The v/c ratios at these locations are also greater than those for the currently adopted future land use conditions (COG Round 8) for nearly all locations.

Table 6. Comparison of COG Round 8 and Scenario G Non-Freeway Link Analysis Results

Location ID and Direction		Roadway	Period	COG Round 8 v/c	Scenario G v/c
1	EB	Frying Pan Road	AM	1.01	1.08
1	WB	Frying Pan Road	PM	1.11	1.32
2	SB	Sunrise Valley Road	PM	1.14	1.53
6	EB	Sunrise Valley Road	PM	1.30	1.87
9	EB	Sunrise Valley Road	PM	0.89	1.03
14	SB	Fairfax County Parkway	AM	1.07	1.19
17	EB	Sunrise Valley Road	AM	1.15	1.29
20	NB	Reston Parkway	AM	1.24	1.24
20	SB	Reston Parkway	PM	1.13	1.49
23	EB	Sunrise Valley Road	AM	0.88	1.08

24	WB	Sunrise Valley Road	AM	1.00	1.10
26	EB	Sunset Hills Road	AM	0.73	1.46
26	EB	Sunset Hills Road	PM	0.80	1.64
28	EB	Sunset Hills Road	AM	0.91	1.30
28	WB	Sunset Hills Road	PM	1.43	1.05
31	NB	Hunter Mill Road	AM	1.16	1.12

RESPONSE #55: Comment noted. This will be taken into consideration with the more detailed study, where alternative paths and additional connections may help alleviate the v/c ratios that are 1.0 or higher.

Comment #56: Based on the queuing analysis reported in Attachment 4 of the ***Transportation Study***, the 50th percentile queues are expected to extend beyond the storage provided or into the adjacent study intersection at the locations listed below. (Not all storage lane lengths were included for the intersection of Sunrise Valley Drive and Frying Pan Road.)

a. Morning Peak
   i. Centreville Road and Coppermine Road – eastbound left turn
   ii. Centreville Road and Sunrise Valley Road – westbound right and southbound left turns
   iii. Fairfax County Parkway and Dulles Toll Road EB ramps – eastbound left turn
   iv. Fairfax County Parkway and Spring Street – northbound left turn
   v. Reston Parkway and Sunrise Valley Road – eastbound through
   vi. Reston Parkway and Dulles Toll Road WB ramps – westbound right turn and northbound through
   vii. Reston Parkway and Sunset Hills Road – eastbound through, northbound left and right turns
   viii. Reston Parkway and New Dominion Parkway – northbound and southbound left turns and southbound through
   ix. Wiehle Avenue and Sunrise Valley Drive – eastbound left turn
   x. Wiehle Avenue and Sunset Hills Road – eastbound right, northbound left and southbound left turns
   xi. Hunter Mill Road and Sunrise Valley Drive – eastbound and northbound left turns and northbound through

b. Afternoon Peak
   i. Sunrise Valley Drive and Frying Pan Road – eastbound through
   ii. Centreville Road and Frying Pan Road – eastbound right turn
   iii. Centreville Road and Coppermine Road – eastbound left turn
   iv. Centreville Road and Sunrise Valley Road – eastbound left, westbound left, westbound right, northbound right and southbound left turns
   v. Centreville Road and Dulles Toll Road EB ramps – eastbound left turn, northbound right turn and southbound through

vi. Fairfax County Parkway and Sunrise Valley Road – eastbound and westbound left turns
vii. Fairfax County Parkway and Dulles Toll Road EB ramps – eastbound left turns
viii. Fairfax County Parkway and Dulles Toll Road WB ramps – westbound left turn
ix. Reston Parkway and Sunrise Valley Road – westbound left turn, westbound through and westbound right turn
x. Reston Parkway and Dulles Toll Road WB ramps – westbound right turn and southbound through
xi. Reston Parkway and Sunset Hills Road – eastbound right turn, westbound left turn, northbound through and southbound through
xii. Reston Parkway and Bluemont Way – southbound through
xiii. Reston Parkway and New Dominion Parkway – eastbound left, eastbound right, westbound left and southbound left turns and northbound and southbound throughs
xiv. Wiehle Avenue and Sunrise Valley Road – eastbound left and westbound right turns
xv. Wiehle Avenue and Dulles Toll Road WB ramps – southbound through
xvi. Wiehle Avenue and Sunset Hills Road – eastbound left, eastbound right, northbound left turns and northbound through
xvii. Hunter Mill Road and Sunrise Valley Road – northbound left turn and northbound through
xviii. Hunter Mill Road and Dulles Toll Road EB ramps – eastbound right

RESPONSE #56: Comment noted. This will be taken into consideration with the more detailed study, where alternative paths and additional connections may help alleviate queuing issues.

Comment #57: Based on the queuing analysis reported in Attachment 4 of the ***Transportation Study***, the 95th percentile queues are expected to extend beyond the storage provided, or into the adjacent study intersection, at the locations indicated in the previous comment and at the additional locations listed below.

a. Morning Peak
   i. Sunrise Valley Drive and Frying Pan Road – eastbound through
   ii. Centreville Road and Frying Pan Road – northbound left turn
   iii. Centreville Road and Sunrise Valley Road – westbound left turn
   iv. Centreville Road and Dulles Toll Road EB ramps – eastbound left turn and southbound through
   v. Fairfax County Parkway and Dulles Toll Road EB ramps –eastbound right turn
   vi. Fairfax County Parkway and Spring Street – eastbound left turn and southbound through

vii. Reston Parkway and Sunrise Valley Road – eastbound left, westbound left, westbound right and northbound right turns
viii. Reston Parkway and Dulles Toll Road EB ramps – eastbound right turn
ix. Reston Parkway and Sunset Hills Road – westbound left, southbound left turns
x. Reston Parkway and New Dominion Parkway – eastbound right, westbound left, westbound through
xi. Wiehle Avenue and Sunrise Valley Drive – southbound left turn
xii. Hunter Mill Road and Dulles Toll Road EB ramps – eastbound right turn and southbound left turns
xiii. Hunter Mill Road and Sunset Hills Road – eastbound left and northbound left turns

b. Afternoon Peak
i. Centreville Road and Frying Pan Road – westbound left turn
ii. Fairfax County Parkway and Sunrise Valley Road – westbound right turn
iii. Fairfax County Parkway and Spring Street – eastbound left and southbound through
iv. Reston Parkway and Sunrise Valley Road – eastbound left turn
v. Reston Parkway and Dulles Toll Road EB ramps – eastbound left turn
vi. Reston Parkway and Dulles Toll Road WB ramps – westbound right turn
vii. Reston Parkway and Sunset Hills Road – westbound right, northbound left and southbound left turns
viii. Reston Parkway and Bluemont Way – eastbound left turn
ix. Reston Parkway and New Dominion Parkway – westbound right and northbound left turns
x. Wiehle Avenue and Sunrise Valley Road – southbound left turn
xi. Wiehle Avenue and Dulles Toll Road WB ramps – westbound left and right turns, westbound through
xii. Wiehle Avenue and Sunset Hills Road – westbound left turn
xiii. Hunter Mill Road and Sunrise Valley Road – eastbound and southbound left turns
xiv. Hunter Mill Road and Dulles Toll Road WB ramps – westbound left turn, northbound left turn and southbound through
xv. Hunter Mill Road and Sunset Hills Road – eastbound left turn and northbound through

RESPONSE #57: Comment noted. This will be taken into consideration with the more detailed study, where alternative paths and additional connections may help alleviate queuing issues.

*NOTE: VDOT's letter started to recount at #55.

Comment #55: The study includes an extensive list of geometric improvements and travel demand reduction strategies which may not necessarily materialize. For example Figure 4.6-C of the ***Transportation Study*** shows 11 lanes across Wiehle Ave. VDOT recommends including a reverse engineering analysis where reasonable transportation facility supply is assumed for 2030 and travel demand, in terms of land development, is desired. Essentially, how much development can a reasonably assumed transportation network handle?

RESPONSE #55: Comment acknowledged. Will be considered for future study.

Comment #56: Because of the levels of vehicular traffic congestion anticipated, it is important that the plans for the TODs include mitigation measures to provide for emergency vehicle access, even during periods of traffic gridlock. Possible actions included:

a. Using smaller, more maneuverable fire trucks,
b. Identifying clear paths for emergency vehicles under congested conditions,
c. Including staging areas for fire and EMS operations during emergencies,
d. To the extent possible, providing emergency response facilities within or near the study area,
e. Designating helicopter landing areas.

RESPONSE #56: Comment acknowledged.

Comment #57: TODs are designed to minimize dependence on single-occupant vehicles, and some TOD proponents see vehicular traffic congestion as a useful incentive for transit and non-motorized travel. Accepting LOS F in some locations as proposed could have negative effects on rubber-tired transit and paratransit modes. Various bus modes, including connector, commuter and bus rapid transit vehicles, as well as paratransit modes such as vanpools, carpools, taxis, and car sharing would be hampered by higher levels of congestion. Where possible, the development plans should include provisions for operation of transit and paratransit vehicles during congested periods. Intelligent Transportation Systems (ITS) concepts such as Bus Lanes with Intermittent Priority should be considered in the design of the TODs.

RESPONSE #57: Comment acknowledged. Will be considered for future study.

Comment #58: Preferential parking pricing for high occupancy vehicles and higher exit tolls on the Toll Road during congested periods should be considered as a congestion mitigation technique.

RESPONSE #58: Comment acknowledged. These will be considered where appropriate and with development applications. It should be noted that the authority to establish toll rates on the Toll Road currently rests with the MWAA.

Comment #59: The queues reported are based on Synchro, in which upstream impacts and gridlock are not evident. A more accurate picture of the future queues can be found using an average of multiple SimTraffic runs.

RESPONSE #59: Comment acknowledged. SimTraffic or another simulation tool will be considered with the more detailed study that will be initiated following the conclusion of this study.

Comment #60: As new streets are added and existing roadways are improved and widened, access management standards should be applied.

RESPONSE #60: Comment acknowledged.

Comment #61: Future detailed analysis and traffic studies for rezoning applications should examine details such as the addition of turn lanes and turn lane lengths.

RESPONSE #61: Comment acknowledged. This will be the case for all rezonings and other development applications.

Comment #62: Care should be taken with triple lefts and opposing dual lefts as are shown in Figures 4.9A-C of the ***Transportation Study***. VDOT may agree with the proposed protected left for triple lefts if and only if the necessary geometry which includes 15 ft wide turn lanes and 5 ft separation exists. The feasibility of these improvements should be considered knowing the geometric requirements and which intersections have limited right-of-way availability. Those that do not have sufficient right-of-way should be modeled as split phasing.

RESPONSE #62: Comment acknowledged. Will be considered for future study.

Thank you for reviewing the transportation study supporting the County's changes to the Comprehensive Plan. We hope our responses to the comments provided by VDOT are sufficient. We look forward to working with VDOT and sharing the results of the additional studies that will be started in the near future.

Sincerely,

Michael W. Garcia, AICP
Planning Section
Transportation Planning Division

Attachment: 1) Corrections to Synchro Files Scenario G (submitted as a separate attachment)