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TRANSPORTATION ADDENDUM

STAFF REPORT
2008-2009 AREA PLANS REVIEW

SUPERVISOR DISTRICT: Dranesville **APR ITEMS:** APR#08-III-7UP; 08-III-11UP; 08-III-12UP

Section 1
Fairfax County Department of Transportation Comments Regarding North County APR #08-111-7UP, 11UP and 12UP (Route 28 Station Cluster)
Dated: February 16, 2010

Section 2
Virginia Department of Transportation- Evaluation Reports of Traffic Impact Analysis for Center for Innovative Technology APR 08-III-11UP
Dated: October 29, 2009

Section 3
Virginia Department of Transportation- Evaluation Reports of Traffic Impact Analysis for Dulles Metro APR 08-III-12UP
Dated: October 8, 2009

County of Fairfax, Virginia

MEMORANDUM

DATE: February 16, 2010

TO: Clara Quintero Johnson
Policy and Plan Development Branch, FCDPZ

FROM: Leonard Wolfenstein, Chief
Transportation Planning Section, TPD, FCDOT

SUBJECT: North County APR #08-IIII-7UP, 11UP, and 12UP (Route 28 Station Cluster)

The Fairfax County Department of Transportation (FCDOT) offers the following comments regarding the proposed changes to the Comprehensive Plan indicated in the subject Area Plan Review (APR) nominations. The Virginia Department of Transportation (VDOT) has transmitted comments which are attached to the final staff report. FCDOT comments are as follows:

- Three APR nominations (III-08-7UP, 11UP, and 12UP) are the subject of the Route 28 Station cluster analysis. A cluster is two or more nominations (Plan Amendments and/or Rezonings) within close proximity of each other that utilize or have the potential to utilize the same transportation system. In this case the cluster analysis looks at the cumulative impacts on all forms of transportation of all the nominations that are in the area north of the Dulles Toll Road, east of Route 28, west of the Town of Herndon, and south of Old Ox Road.
    - Nomination 12UP overlaps 7UP and proposes the same 2.0 FAR level of development on the same parcels as 7UP; therefore, the 7UP proposed development is considered to be included in the 12UP nomination. Additionally, there is a rezoning request in Loudoun County for the site commonly referred to as Dulles World Center. The applicant proposes a 2.0 FAR on approximately 77 acres. This is equivalent to approximately 5.8 million square feet of development. Due to the amount of development being proposed by Dulles World Center, FCDOT staff indicated that each nominator include this development when assessing the cumulative impact of all development in the area.
- Prior to the analysis of these APR nominations, it is important to note that the current Comprehensive Plan states that all development on the affected parcels may achieve a 1.0 FAR in Fairfax County assuming the road improvements shown on the Transportation Plan Map, rail or Bus Rapid Transit (BRT), pedestrian circulation and trails, and finally additional vehicular access is provided through Loudoun County.

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- There is currently approval for a 1.0 FAR nonresidential development in Loudoun County where the Dulles World Center applicant has submitted a rezoning. This was used for the existing Comprehensive Plan base in Loudoun County in the cluster analysis.
- All of 11UP is located within half a mile of the future Route 28 Metrorail Station and half of the land area is located within one quarter of a mile. Most of 12UP is located within a half mile of the station except the two northernmost parcels. Both of these nominations offer great opportunities for major trip reductions due to their proximity to the future Route 28 Metrorail Station. Such reductions have been included in both of the studies and will be discussed later in this memo. Walking distances from these sites to the Route 28 Station could be longer or shorter depending on where the entrance pavilion is located to access the Metro platform.
- Innovation Avenue and the western side of Rock Hill Road have no sidewalks or trails. These must be installed prior to any development, especially if this area is intended to develop as a TOD area. Additionally, trail and sidewalk connections should be considered with the Reflection Lake community to the east as well as the Town of Herndon. There are currently no connections, which leaves the Route 28 Station Cluster cut off from developments to the east as well as south of the Toll Road.
- FCDOT staff presented a new recommendation to the Dranseville Task Force on June 29, 2009 to retain the Rock Hill Road Overpass (also known as the Davis Drive Extension Overpass) on the Fairfax County Transportation Plan Map but to move it to the west in a general area near the Fairfax County and Loudoun County border. Due to possible development implications Fairfax County retained a consultant to do a feasibility analysis on the overpass that examined three general alignments that would tie down north of the Dulles Toll Road. The analysis has substantially been completed to date and it was determined that all three alignments can be constructed. All three alignments start at the corner of Sunrise Valley Drive on the south side and connect to 1) Innovation Avenue, 2) existing Rock Hill Road by CIT, and 3) west of the CIT building toward a possible Davis Drive extension or Shaw Road extension. Depending upon which location is endorsed (based on a multitude of issues in addition to the feasibility analysis), right-of-way should be preserved by the affected APR properties as well as the by Dulles World Center rezoning in Loudoun County. Failure by both jurisdictions and the developments to reserve right-of-way for the overpass could result in a key access point (both vehicular and pedestrian) being removed from the area.
- The Route 28 Station Cluster has severe site access constraints. The site is constrained by access points (vehicular, bike, and pedestrian) due to major roads (i.e. the Dulles Toll Road and Route 28) and the lack of access from the Reflection Lake Community to the east (located in Fairfax County) as well as the Town of Herndon. Currently, there are only two points of access, which are from Rock Hill Road and the partially constructed interchange at Innovation Avenue and Route 28. In the future, the interchange at Innovation Avenue and Route 28 will be upgraded to a full interchange. At most, as shown on Loudoun and Fairfax County's Transportation Plans, there could be four points of access. One additional connection would be at Shaw Road (in Loudoun County) to

Innovation Avenue and the other would be the Rock Hill Road overpass. With the current Rock Hill Road overpass recommendation by FCDOT, it is still unknown, until an alignment has been endorsed, whether the overpass will be accommodated. Additionally, while the extension of Shaw Road from Old Ox Road to Innovation Avenue is currently on Loudoun County's Countywide Transportation Plan, this connection would be predicated upon a certain level of development from Dulles World Center, which is currently undergoing a rezoning.

- A major point of access into the Route 28 Station area would be from the Innovation Avenue/Route 28 interchange. Currently there are six lanes on Route 28 but both the Fairfax and Loudon County Transportation Plans show this road being improved to ten lanes. The Fairfax County Transportation Plan shows this road with HOV lanes and as an enhanced public transportation corridor. The Route 28 Tax District is only responsible for funding and constructing the seventh and eighth lanes on Route 28. Timing and funding for the construction of the ninth and tenth lanes on Route 28 is currently unknown. If the additional lanes are constructed, they may be restricted for buses, HOV, or used like the shoulder lanes on I-66 are currently used during peak periods. While not recommended in the 11UP and 12UP traffic studies, the Dulles World Center study did state that with the inclusion of these APRs, the increased density with its rezoning, and the projected increase in background traffic on Route 28, the road would have to be expanded to ten lanes.

Traffic Impact Analysis Results from 11UP and 12UP Traffic Studies (Includes FCDOT Comments)

- Trip reductions due to future transit, synergy, and other Transportation Demand Management (TDM) measures were also taken for Dulles World Center in Loudoun County. The total trip reductions used for this site are almost identical to those used for nomination 11UP. Most of the land area for Dulles World Center is located well beyond a half mile from the planned Route 28 Station, which is considered to be the standard limit for Transit Oriented Development (TOD). While this development and its associated rezoning is not part of this APR process, FCDOT believes that these trip reductions are very aggressive and are not warranted. The trip estimates for Dulles World Center and the reductions associated with the development were used in the cumulative traffic analyses by both 11UP and 12UP nominations; therefore, FCDOT believes that the cumulative peak hour traffic in the area and around the future Route 28 Metrorail station could be even worse than estimated in these studies.

- Reductions Assumed are:
  - 15% internal capture rate
  - Transit Reductions:
    - Residential – 33%
    - Retail – 0%
    - Hotel – 10%
    - Office – 10%
- Tables 1-4 below outline intersection level of service, road segment congestion, and net new trips for the two APR nominations and the Dulles World Center rezoning in Loudoun County. All 2030 values assume build-out of the CLRP transportation plan network. There is one column that assumes the extension of Shaw Road and one that does not. Nomination 11UP assumed the inclusion of the link with the development of the Dulles World Center, even though it is not in the CLRP network. While FCDOT will not object to the inclusion of the Shaw Road extension, we would like to note that the inclusion of this extension along with six lanes on Innovation Avenue should be considered as an ideal road network. The exclusion of the Shaw extension, which the traffic study for 12UP assumes, is a conservative road network if no other road connections are made. It is presented to show the affect on intersection level of service if the improvements assumed in 11UP are not in place.

Table 1
Intersection Level of Service (LOS)

Intersection	2008 Existing	2030 Comp Plan	2030 11UP Nomination	2030 12UP Nomination	2030 Cluster (with Shaw Ext.)	2030 Cluster (No Shaw Ext.)
Shaw Road/ Old Ox Road	AM - D PM - D	AM - F PM - F	AM - F PM - F	AM - F PM - F	AM - F PM - F	AM - F PM - F
Shaw Road/ Old Ox Road (1)				AM - C PM - D		AM - C PM - D
Rock Hill Road/ Old Ox Road	AM - E PM - C	AM - F PM - F	AM - F PM - F	AM - F PM - F	AM - F PM - F	AM - F PM - F
Rock Hill Road/ Old Ox Road (2)				AM - F PM - F		AM - F PM - F
Herndon Pkwy/ Sterling Road	AM - E PM - F	AM - F PM - F	AM - F PM - F	AM - F PM - F	AM - F PM - F	AM - F PM - F
Herndon Pkwy/ Sterling Road (3)				AM - E PM - E		AM - F PM - F
Innovation Ave/ Rock Hill Rd (N) *	AM - A PM - A	AM - A PM - A	AM - A/B PM - A/C	AM - A PM - B	AM - A/C PM - A/E	AM - A PM - F
Innovation Ave/ Rock Hill Rd (N) (4)				AM - A PM - B		AM - A PM - B
Innovation Ave/ Rock Hill Rd (S) *	AM - A PM - A	AM - A PM - A	AM - A/B PM - A/B	AM - B PM - F	AM - A/B PM - A/C	AM - F PM - F
Innovation Ave/ Rock Hill Rd (S) (5)				AM - A PM - C		AM - F PM - F

* Denotes a Stop Sign Intersection

(1) 12UP suggested mitigation: Add SB left turn lane; EB left turn lane; widen Old Ox from 4 to 6 lanes.
(2) 12UP suggested mitigation: Add SB dual lefts, additional NB left, additional WB left turn lane. 11UP suggested mitigation: Extend WB left turn and NB right turn lane. Both Studies: Widen Rock Hill from 2 to 4 lanes; signal retiming adjustments.
(3) 12UP suggested mitigation: Add NB left turn lane; additional SB right turn lane. 11UP suggested mitigation: Extend EB left turn lane. Both Studies: Widen Sterling from 4 to 6 lanes; Signal timing adjustments.
(4) 12UP mitigation: Add signal; add EB left turn lane. Both Studies: Widen Innovation from 4 to 6 lanes.
(5) 12UP mitigation: Add signal; add SB left turn lane. Both Studies: Widen Innovation from 4 to 6 lanes.

- Signal retiming and modifications was offered as a mitigation measure at select intersections within the study area by both studies. It should be noted that VDOT operates traffic signals in networks where signal cycles are determined to allow for network optimization (as opposed to a single intersection). The feasibility of signal modifications would need to be evaluated as part of a network and not a single intersection.

- No assessment of the mitigation measures for the Cluster analysis with Shaw Road extended was provided. It could be assumed that with the inclusion of Shaw Road extended, the level of service at the intersections of Old Ox Road/Rock Hill Road and Old Ox Road/Shaw Road could be improved along with the mitigation measures shown

above. Whether these intersections would operate at an acceptable LOS of D or better would have to be determined with a more detailed study at the time of rezoning.

- The traffic study for 12UP (which excludes Shaw Road extended) shows that the intersection of Old Ox Road and Rock Hill Road is significantly improved with the suggested mitigation measures listed in point #2 under Table 1.
    - If Shaw Road extended is included in a future traffic analysis with a rezoning then this could alleviate the intersection of Old Ox Road and Rock Hill Road.
    - Additionally, if Rock Hill Road (or a parallel equivalent road) is shifted to the west, then more room is available to accommodate additional or longer turn lanes.
- The mitigations listed above are potential improvements suggested by the traffic studies. Some of the intersection and road segment mitigation measures may be very difficult to implement and since most of the suggested road improvements are not in Fairfax County; FCDOT is concerned about their possible implementation. In addition, particular attention should be paid to the Old Ox Road/Rock Hill Road intersection at the time of rezoning as this has a direct impact on buses and vehicles accessing the Route 28 Metro station.

Table 2
2030 Link Analysis - Current Comprehensive Plan (Including Dulles World Center)

Roadway	Section	AM/PM Peak Hour	2030 Volume	Lanes	Capacity Volume	V/C Ratio
EB Sterling Rd	East of Rock Hill Rd	AM	3,622	3	2,700	1.34
WB Sterling Rd	East of Rock Hill Rd	AM	2,868	3	2,700	1.06
EB Innovation Ave	East of Route 28	AM	2,856	2	1,000	2.86
WB Innovation Ave	East of Route 28	AM	765	2	1,000	0.77
EB Innovation Ave	East of Route 28	AM	2,856	3	1,500	1.90
WB Innovation Ave	East of Route 28	AM	765	3	1,500	0.51
SB Rock Hill Rd	South of Old Ox Rd	AM	684	2	1,000	0.68
NB Rock Hill Rd	South of Old Ox Rd	AM	867	2	1,000	0.87
EB Sterling Rd	East of Rock Hill Rd	PM	3,601	3	2,700	1.33
WB Sterling Rd	East of Rock Hill Rd	PM	3,581	3	2,700	1.33
EB Innovation Ave	East of Route 28	PM	1,164	2	1,000	1.16
WB Innovation Ave	East of Route 28	PM	2,963	2	1,000	2.96
EB Innovation Ave	East of Route 28	PM	1,164	3	1,500	0.78
WB Innovation Ave	East of Route 28	PM	2,963	3	1,500	1.98
SB Rock Hill Rd	South of Old Ox Rd	PM	700	2	1,000	0.70
NB Rock Hill Rd	South of Old Ox Rd	PM	972	2	1,000	0.97

Table 3
2030 Link Analysis – Proposed APRs including Dulles World Center Rezoning (Loudoun)

Roadway	Section	AM/PM Peak Hour	2030 Volume	Lanes	Capacity Volume	V/C Ratio
EB Sterling Rd	East of Rock Hill Rd	AM	3,759	3	2,700	1.39
WB Sterling Rd	East of Rock Hill Rd	AM	3,082	3	2,700	1.14
EB Innovation Ave	East of Route 28	AM	4,131	2	1,000	4.13
WB Innovation Ave	East of Route 28	AM	1,564	2	1,000	1.56
EB Innovation Ave	East of Route 28	AM	4,131	3	1,500	2.75
WB Innovation Ave	East of Route 28	AM	1,564	3	1,500	1.04
SB Rock Hill Rd	South of Old Ox Rd	AM	925	2	1,000	0.93
NB Rock Hill Rd	South of Old Ox Rd	AM	1,018	2	1,000	1.02
EB Sterling Rd	East of Rock Hill Rd	PM	3,964	3	2,700	1.47
WB Sterling Rd	East of Rock Hill Rd	PM	3,904	3	2,700	1.45
EB Innovation Ave	East of Route 28	PM	3,063	2	1,000	3.06
WB Innovation Ave	East of Route 28	PM	5,087	2	1,000	5.09
EB Innovation Ave	East of Route 28	PM	3,063	3	1,500	2.04
WB Innovation Ave	East of Route 28	PM	5,087	3	1,500	3.39
SB Rock Hill Rd	South of Old Ox Rd	PM	1,064	2	1,000	1.06
NB Rock Hill Rd	South of Old Ox Rd	PM	1,369	2	1,000	1.37

- Mitigation measures from the 11UP and 12UP analyses included the widening of Old Ox/Sterling Road to six lanes from Route 28 to Herndon Parkway. Both 11UP and 12UP reaffirmed that Rock Hill Road (or a parallel equivalent road) should be widened to four lanes. Additionally, 11UP showed that Innovation Avenue should be widened to at least a six lane divided facility. This does include Dulles World Center traffic and widening beyond a six-lane facility may not be needed in Fairfax County as more traffic will utilize the Innovation Avenue/Route 28 interchange or the future extension of Shaw Road to Innovation as shown on the Loudoun County Countywide Transportation Plan. While FCDOT acknowledges the need to expand Innovation Avenue to six lanes, widening this road in its current location next to the future Route 28 Metrorail station is not consistent with transit oriented development. FCDOT addresses this improvement under the Recommendations section.

Table 4
Trip Generation – 11UP, 12UP, Dulles World Center (estimated Net New Trips)

Nomination/ Rezoning	AM Peak	PM Peak	Daily	Percent New Daily Trips
08-III-11UP	909	1,060	8,206	17%
08-III-12UP	773	1,408	13,075	27%
DWC	1,438	3,054	27,821	57%
Total Trips	3,121	5,522	49,102	

- An inter-jurisdictional meeting was held between Fairfax County, Loudoun County, the Town of Herndon, VDOT, and traffic engineers from Dewberry associated with Route 28 Tax District who have worked on Route 28 and the associated roads that intersect with it in early August 2009. An assessment was made at the time the Innovation Avenue interchange was being planned on land use totals that could be accommodated in the area where the Dulles World Center rezoning is currently underway. It was estimated that three million square feet of development was assumed to be able to be developed by-right. However, in order to accommodate four million square feet of development, Rock Hill Road would need to be improved, Shaw Road would need to be extended to Innovation Avenue, and Innovation Avenue would need to be six lanes. This level of development was assumed for the Dulles World Center property only. Additionally, reductions for internal trips and rail usage were also assumed for the four million square feet of development. While this assessment only looked at development on the Dulles World Center property, it does show that this site is constrained and improvements to the transportation system including a significant and meaningful TDM program are necessary to accommodate most or even a portion of the development proposed by the APR nominations and the rezoning.
- Added development intensity should be contingent upon the following intersection improvements identified in the 11UP and 12UP traffic studies. These improvements along with others not listed should be in place prior to development or phased in a way that maintains at least an intersection LOS D or does not degrade their LOS if it is already lower than a LOS D. They are as follows:
    - Addition of another westbound left turn lane on Old Ox to Rock Hill.
    - Addition of northbound left turn lane at Rock Hill. Extension of the northbound right turn lane at Rock Hill. VDOT has stated that any extension of the northbound right turn lane is not feasible. At the time of rezoning this issue should be resolved which could include realigning the road to the west or additional improvements as suggested in a future study or by the local jurisdictions.
    - Intersection improvements at Sterling Road and Herndon Parkway, which could include extension of the eastbound left turn lane. Additionally, if feasible, a second left turn lane should be added on northbound Herndon Parkway.
- Three of the five intersections identified for analysis in the two traffic studies are located in other jurisdictions. Improving these intersections will need to be coordinated by the developers with Loudoun County and the Town Herndon.
- In some instances intersection improvements and road widening is limited by either the jurisdiction and/or existing development. In instances where a road improvement is identified as needed, the developer should try in some form to accommodate it, reduce their development intensity, and/or create a TDM package that is tiered to appropriate levels of development and monitored.

FCDOT ASSESSMENT (APR NOMINATIONS ONLY)

- Table 5 shows the level of service at the key intersections that were analyzed in the 11UP and 12UP traffic studies. This 2030 LOS intersection table is from the Dulles World Center traffic study. The table shows intersection LOS without any development of the APR nominations and the rezoning in Loudoun County. The last column, which shows the intersection LOS without any of the developments, is meant to serve as a baseline upon which the development proposals from the two APR nominations will add traffic. As can be seen in the table below, signal timing adjustments are included (by Dulles World Center) as the only mitigation measure for two of these intersections. No improvements are suggested for Sterling Road and Herndon Parkway as this intersection is located in the Town of Herndon and traffic mitigation would need to be handled by VDOT and the Town.

Table 5
2030 Intersection Level of Service – No Development

Intersection	2008 Existing	2030 Comp Plan	Future 2030 (No Development) **
Shaw Road/ Old Ox Road	AM - D PM - D	AM - F PM - F	AM - F PM - F
Shaw Road/ Old Ox Road (1)			AM - D PM - E
Rock Hill Road/ Old Ox Road	AM - E PM - C	AM - F PM - F	AM - F PM - F
Rock Hill Road/ Old Ox Road (2)			AM - E PM - D
Herndon Pkwy/ Sterling Road	AM - E PM - F	AM - F PM - F	AM - F PM - F
Innovation Ave/ Rock Hill Rd (N) *	AM - A PM - A	AM - A PM - A	AM - A/B PM - A/B
Innovation Ave/ Rock Hill Rd (S) *	AM - A PM - A	AM - A PM - A	AM - A PM - A

* Denotes stop sign intersection
** The LOS is from the Dulles World Center (DWC) Traffic Impact Analysis (April 27, 2009) Future 2030 Intersection Capacity without Development
(1) DWC Mitigation: Signal timing adjustment
(2) DWC Mitigation: Signal timing adjustment

- A link analysis was done by FCDOT for only 11UP and 12UP. All of Dulles World Center's development including any of their road improvements are not included in this assessment. This link analysis was performed to determine the impact of only these two nominations on the roads that are partially within Fairfax County. This analysis will also lead to transportation recommendations that will be discussed later in the memo. The only 2030 improvement included is the completion of the full interchange at Innovation Avenue and Route 28.

- Table 6 shows that under the current Comprehensive Plan that one additional lane might be needed on Innovation Avenue beyond what is currently shown on the Transportation Plan Map. The additional capacity as indicated would be needed on westbound Innovation Avenue during the PM peak hour only. The projected volume above the capacity may be able to be handled within the current number of lanes on Innovation Avenue. Trip reductions for internal synergy and transit usage are assumed in this link analysis. The reductions used are the same ones both consultants used to estimate their peak hour trips for their traffic studies.

Table 6
2030 Link Analysis – Fairfax County Comprehensive Plan

Roadway	Section	AM/PM Peak Hour	2030 Volume	Lanes	Capacity Volume	V/C Ratio
EB Innovation Ave	East of Route 28	AM	978	2	1,000	0.98
WB Innovation Ave	East of Route 28	AM	204	2	1,000	0.20
SB Rock Hill Rd	South of Old Ox Rd	AM	512	2	1,000	0.51
NB Rock Hill Rd	South of Old Ox Rd	AM	818	2	1,000	0.82
EB Innovation Ave	East of Route 28	PM	561	2	1,000	0.56
WB Innovation Ave	East of Route 28	PM	1,129	2	1,000	1.13
SB Rock Hill Rd	South of Old Ox Rd	PM	659	2	1,000	0.66
NB Rock Hill Rd	South of Old Ox Rd	PM	873	2	1,000	0.87

- Table 7 shows the same links with the proposed development from the two APR nominations. The analysis illustrates that the links are oversaturated using the road network that is currently on the Fairfax County's Transportation Plan Map and they need to be widened. Innovation Avenue would need to be widened to at least eight lanes (if not more) and Rock Hill Road would need to widened to five lanes (three northbound and two southbound).
- In order to accommodate this amount of development and not widen Innovation Avenue or Rock Hill Road, traffic would need to be reduced by approximately 65% on Innovation Avenue and 25% on Rock Hill Road. These trip reductions would be in addition to those already assumed for 11UP and 12UP.

Table 7
2030 Link Analysis – Proposed APRs

Roadway	Section	AM/PM Peak Hour	2030 Volume	Lanes	Capacity Volume	V/C Ratio
EB Innovation Ave	East of Route 28	AM	2,335	2	1,000	2.34
WB Innovation Ave	East of Route 28	AM	922	2	1,000	0.92
SB Rock Hill Rd	South of Old Ox Rd	AM	850	2	1,000	0.85
NB Rock Hill Rd	South of Old Ox Rd	AM	996	2	1,000	1.00
EB Innovation Ave	East of Route 28	PM	1,633	2	1,000	1.63
WB Innovation Ave	East of Route 28	PM	2,880	2	1,000	2.88
SB Rock Hill Rd	South of Old Ox Rd	PM	927	2	1,000	0.93
NB Rock Hill Rd	South of Old Ox Rd	PM	1,310	2	1,000	1.31

- Table 8 shows the link volumes with the proposed 11UP development and a reduced development for nomination 12UP (approximately 1.35 million square feet). The analysis demonstrates that Rock Hill Road, as it is currently shown on Fairfax County's Transportation Plan Map, can adequately handle this level of development. However, Innovation Avenue in this scenario would need to be widened to six lanes to accommodate the development. Additionally, a reduction of approximately 20% in vehicle traffic in the PM peak hour on Innovation Avenue is needed, for this level of development to be accommodated. Alternatively, a lower level of service may be acceptable provided that this is within the TOD area (defined as a half mile from the metro station platform). This is consistent with Fairfax County TOD policy included in the Policy Section of the Comprehensive Plan.
- If a lower level of service is accepted because o the nature of this development then Innovation Avenue and Rock Hill Road would have a volume to capacity ratio at or less than 1.0.

Table 8
2030 Link Analysis – Proposed 11UP Nomination and Reduced 12UP Nomination

Roadway	Section	AM/PM Peak Hour	2030 Volume	Lanes	Capacity Volume	V/C Ratio
EB Innovation Ave	East of Route 28	AM	1,536	3	1,500	1.02
WB Innovation Ave	East of Route 28	AM	613	3	1,500	0.41
SB Rock Hill Rd	South of Old Ox Rd	AM	651	2	1,000	0.65
NB Rock Hill Rd	South of Old Ox Rd	AM	920	2	1,000	0.92
EB Innovation Ave	East of Route 28	PM	1,108	3	1,500	0.74
WB Innovation Ave	East of Route 28	PM	1,879	3	1,500	1.25
SB Rock Hill Rd	South of Old Ox Rd	PM	796	2	1,000	0.80
NB Rock Hill Rd	South of Old Ox Rd	PM	1,060	2	1,000	1.06

- The level of service will deteriorate at three intersections located outside of Fairfax County compared to what is shown in Table 5. There appears to be enough land to accommodate additional intersection improvements at Old Ox Road/Shaw Road and Old

Ox Road/Rock Hill Road. However, intersection improvements at Herndon Parkway and Sterling Road are limited due to the existing single family homes that abut these two roads.

RECOMMENDATIONS

- Access management/driveway consolidation is necessary along Innovation Avenue and Rock Hill Road (or a parallel road) since these will be major roads for both nominations. An internal network of streets and trails should be incorporated that connects all development in Loudoun County and Fairfax County.
- Rock Hill Road or a parallel road (such as Davis Drive extended) must be improved to four lanes prior to any development on the 11UP or 12UP sites.
- If a parallel road is constructed next to Rock Hill Road, then 12UP must improve existing Rock Hill Road to an improved two-lane facility before any development occurs. Currently the road is a substandard two-lane facility (one lane in each direction) that does not meet VDOT guidelines for road width at certain places.
- The link analysis above demonstrated that six lanes are needed on Innovation Avenue accessing Route 28. These six lanes should be accommodated in some form on the Route 28 cluster APR nominations. Added development beyond 50% of the proposed intensity should be contingent upon the inclusion of these six lanes accessing Route 28. This road improvement would need to be added to both the Loudoun County and Fairfax County Transportation Plan Maps since Innovation Avenue is not identified to be widened by either jurisdiction. The necessity of six lanes to and from Route 28 was demonstrated with Tables 6 and 8 shown in the FCDOT Assessment of the APR nominations.
- Additionally, to the extent possible, Innovation Avenue should be realigned further to the north in a straight line from Route 28 to Dulles Green Boulevard in an alignment that generally passes between the 11UP and 12UP nominations. Coordination by the developer between Fairfax County, Loudoun County, and VDOT will be needed to realign this road or even widen this road to six lanes near the future completed interchange.
    - A feasibility analysis has been conducted by a Fairfax County consultant for the construction of the Rock Hill Road overpass. If the overpass is ultimately constructed in an alignment that is acceptable to Fairfax County and Loudoun County, then the six lanes accessing Route 28 via the Innovation Avenue interchange should not conflict with the construction of the overpass and the placement of its piers.
    - Priority between the inclusion of the six lanes on the Route 28 cluster and the overpass should be given to the overpass.
    - Development should occur in such a way to accommodate these road improvements without negatively impacting the future Metrorail station.

- It is recommended that future development in the Route 28 Cluster (Fairfax County APRs only) be phased as transportation improvements are identified and constructed. This includes improvements to the roads and the intersections in Fairfax County and in the other jurisdictions. The improvements should include but are not limited to the following: completion of the full interchange at Route 28 and Innovation Avenue, the extension of the Metrorail to the area, and an integrated network of streets, sidewalks, bike lanes, and trails that should be coordinated with adjacent existing and future developments.
- A TDM program must also be established and include FCDOT-approved TDM measures in conjunction with nearby land owners. Nomination 11UP recommended a minimum vehicular peak hour reduction of 15% for office and 30% for residential. This minimum TDM program is too low to achieve the level of reductions that were taken for transit and internal synergy in the traffic study. Additionally, the link analysis performed by the nominators and FCDOT assumes higher reductions than the proposed minimums. If the proposed minimums are accepted then the volume to capacity ratios in the link analysis conducted by FCDOT (shown in Tables 7 and 8) would be higher and more road capacity might be needed. 11UP took a total reduction of approximately 43% for residential and 18% for office. This includes transit and internal synergy reductions. An overall vehicular reduction of 23% was taken for this nomination. It was noted earlier in the memo that this nomination is entirely within a half mile of the future Route 28 Metrorail Station and half of the site is within one-quarter of a mile. FCDOT recommends that a total reduction of at least 25% be achieved for 11UP and 12UP. This would align the proposed development with a transportation system that could accommodate, from a preliminary perspective, the increase in traffic within the site (along with a reduced density for 12UP).
- *Update: Based on Fairfax County's draft TDM study new reductions are recommended for the nominations and are tiered to their distance from the Metrorail platform. This supersedes the 25% overall reduction mentioned above. They are as follows:*
    - *Within ¼ mile – minimum 30% trip reduction for residential and office*
    - *Within ½ mile – minimum 25% trip reduction for residential and, 20% for office*
    - *Beyond ½ mile – to be determined with a TDM study*
- Parking maximums and a fee not to be less than the general cost of using Metrorail should be established similar to the Tyson's Plan Amendment to encourage the use of Metrorail or buses.
- 11UP should incorporate the Metro entrance pavilion, kiss and ride, and bus bays on their site as it would directly benefit all future and existing development in the area. This could also lead to higher trip reductions, which are needed on the site because of the limited vehicular access points.
- Fairfax County's Transit Development Plan (TDP) does not show any bus access into and out of the Route 28 station area. However, any development on 11UP or 12UP needs to

coordinate with the Fairfax Connector, Loudoun County bus service provider, and WMATA to ensure that proper service is available for all persons accessing the Route 28 Metrorail Station as well as the developments.

Please contact Mike Garcia at Michael.Garcia3@fairfaxcounty.gov or 703-877-5673 should you need further information or clarification of these comments.

cc: Dan Rathbone, FCDOT
Angela Rodeheaver, FCDOT
Mike Garcia, FCDOT

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

DAVID S. EKERN, P.E.
COMMISSIONER

14685 Avion Parkway
Chantilly, VA 20151
(703) 383-VDOT (8368)

October 29, 2009

Ms. Regina Coyle
Director of Zoning Evaluation
Department of Planning and Zoning
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5511

Re: Center for Innovative Technology
Evaluation Report of Traffic Impact Analysis
APR 08-III-11UP

Traffic Engineering Comments:

Summary of the Key Findings:

The traffic study was prepared to complete the Area Plan Review process for an amendment to the Comprehensive Plan. The nomination proposes to modify the current Plan recommendations to allow for a mixed use, transit oriented development (TOD). The mix of uses comprised of 1,210,000 GSF of office space, 40,000 GSF of retail uses, 150,000 GSF hotel (or 300 rooms), and 1,000,000 GSF residential floor area (or approximately 1,000 DUs). The subject site is about 25 acres and is located west of Rock Hill Road. The site is located entirely within a ½ mile of the proposed platform for the Route 28/CIT Transit Station. The Route 28/CIT station is the last proposed station in Fairfax County and will be located just east of Dulles Airport.

Accuracy of the Traffic Impact Analysis:

The following are our comments for the traffic impact analysis. It should be noted that these comments are for information and are not expected to drastically change results of the study; therefore, no revisions or resubmissions are necessary.

1. Page 23 shows 30 ADT for Shaw Road, it should be checked and corrected.
2. Page 26, the trip distribution on this page is different from the distribution used in another study (Dulles Metro, APR #08-III-12UP) just north of this location.
3. Similarly, some assumptions used for Synchro analysis are different from the above referred study. For example, peak hour factors and signal phase schemes.

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Comments on the Recommended Improvements:

1. Retiming of individual signals can be an option; however, the impact of such action should be analyzed for entire corridor or network.
2. There is no room to extend the north bound right turn lane at Old Ox Road and Rock Hill Road.

Additional VDOT Recommendations/Comments:

None

Conclusions:

In general, the TIA is found acceptable.

Transportation Planning Comments:

The Center for Innovative Technology (CIT) site is located at the western edge of Fairfax County adjoining Loudoun County on the west. The major roadways in the vicinity of the site include Rock Hill Road to the east, Old Ox Road to the north, Route 28 to the west and Dulles Toll Road to the South. The site is approximately 25.49 acres. It is currently zoned I-4 (medium industrial) and is currently developed with the 122,945 GSF Center for Innovative Technology. The I-4 zoning district permits development up to a maximum floor area ratio (FAR) of 0.5. Development up to a 0.70 FAR may be permitted with the Board of Supervisor's approval of a special exception. The comprehensive plan text associated with the CIT recommends development of the property with institutional uses. As an option and subject to certain conditions, the area within ¼ mile of the planned Route 28 / CIT metrorail station may be appropriate for development with a mix of uses up to a FAR of 1.0 or approximately 1,110,334 GSF. The nomination proposes to modify the current plan recommendations to allow for a mixed use, transit oriented development (TOD) at a maximum FAR of 2.17. Such a level of development could result in up to 2,400,000 gross square feet of buildable area. The 2.17 FAR mix of uses for purposes of this traffic study comprised of 1,210,000 GSF of office space, 40,000 GSF of retail uses, 150,000 GSF hotel (or 300 rooms) and 1,000,000 GSF residential floor area (or approximately 1,000 DU's).

The parcel north of the site is the Dulles Metro center property also referred to Stout Property for which a comprehensive plan amendment is submitted as part of the North County APR process. The parcel to the west of the site in Loudoun County is the Dulles World Center site for which a rezoning is currently under review. The study has evaluated the impacts of the site with the proposed APR of Dulles Metro center and rezoning on the adjacent site in Loudoun County. The analysis is performed for four conditions. They are identified below:

1. Existing conditions
2. Future 2030 baseline comprehensive plan
3. Future 2030 baseline conditions with the subject nomination only

4. Future 2030 baseline conditions with all area APR nominations and the Dulles World Center rezoning.

Of all the scenarios mentioned above scenario 4 is the most applicable to the current proposals submitted. Therefore the main comments related to the highway network improvements are provided under this scenario, regional issues and summary.

Following are our comments on the study. The comments are organized into Study Comments to address the general study area, and traffic analysis for each scenario, Regional Issues and Summary:

Study comments

1. Study area: The intersections identified for the study include the following:
   - Old Ox Road (Route 606) / Shaw Road (Route 636) in Loudoun County
   - Old Ox Road (Route 606) / Rock Hill Road (Route 605) in Loudoun County
   - Herndon Parkway (Route 6658) / Sterling Road (Route 6656) in Town of Herndon
   - Innovation Avenue (Route 847) / Rock Hill Road (Route 605) north intersection in Fairfax County
   - Innovation Avenue (Route 847) / Rock Hill Road (Route 605) south intersection in Fairfax County
   - Route 28 / Innovation Avenue ramps in Loudoun County
     The traffic analysis conducted for all the scenarios does not include the ramp analysis for Route 28 / Innovation Avenue. About 70 percent of the site traffic uses the intersection of Route 28 and Innovation Avenue to access the site. Therefore, this intersection should be analyzed in the study.

   The following links are identified for the study:

   - Innovation Avenue east of Route 28
   - Rock Hill Road South of Route 606
   - Sterling Road (Rock Hill Road to Herndon Parkway)

     Route 28 and Old Ox Road should be analyzed in the study to identify the long term improvements that would be needed to these links.

2. Existing area bicycle and pedestrian facilities – As mentioned on page 10 the TOD should reflect a multimodal transportation infrastructure, with an emphasis on pedestrian and biking facilities that offer a choice of mode. The traffic study should provide a description of the existing pedestrian / biking facilities and the planned pedestrian and bike facilities in the comprehensive plan for the study area roadways serving the site. This will help identify the bike / ped improvements needed in the area to support the future metro station.
3. Trip Distribution – The trip distribution percentages shown on page 26 don't add up to 100%.

4. The internal capture and transit trip reductions appear to be reasonable.
5. Existing conditions analysis shows that the majority of the study area intersections and links operate at an acceptable level of service under the existing conditions. The Herndon Parkway / Sterling Road intersection operates at an LOS F during the PM peak hour and the Sterling Road link operates near v/c = 1.0. Under the existing conditions Old Ox Road and Sterling Road are 4 lane roadways, Rock Hill Road is a 2 lane roadway and Innovation Avenue is a 4 lane roadway.
6. Traffic Analysis for 2030 baseline conditions with current comprehensive plan level of development for a) the subject site, b) Dulles Metro (Stout Property) site and c) the Dulles World Center site in Loudoun County shows that the intersections along Old Ox Road and Sterling Road would operate above capacity during the peak hours assuming the current comprehensive plan level development and the planned improvements. The link analysis shows that Sterling Road and Innovation Avenue would operate at V/C of 1.34 and 1.90 respectively in the peak direction during the AM peak hour with 6 lanes on Sterling Road as well as Innovation Ave. The Rock Hill Road link with 4 lanes will operate at V/C ratio approaching 1.0 (0.97). The queuing analysis results indicate that the current comprehensive plan would likely significantly impact the available capacity of turn bays at the study intersections. The study mentions that additional capacity would need to be provided to accommodate future forecasted queues, warranting additional possible intersection improvements.
   Thus based on the traffic analysis shown in the report the current roadway network even with the planned improvements beyond those in the current County Comprehensive plan could not support the development at the current comprehensive plan levels. Even though the link analysis for Old Ox Road is not conducted based on the results of the Sterling Road link analysis it appears that Old Ox Road will also operate at V/C of greater than 1 necessitating additional improvements on Old Ox Road beyond those shown in the Loudoun County comprehensive plan.
7. The intersection improvements assumed at the intersection of Sterling Road and Herndon Parkway are not included in the Town of Herndon Comprehensive plan. This will require modifications to the Town of Herndon Comprehensive plan.
8. The 6 lanes assumed on Innovation Avenue are not per the current Fairfax County comprehensive plan. The comprehensive plan will have to be modified to show 6 lanes on Innovation Avenue.
9. For the 2030 baseline future conditions with the nomination only and 2030 future conditions with all area APR nominations and Dulles World Center rezoning the traffic analysis indicates that the operations at all the study intersections and links degrade further. The following table shows the comparison of results v/c ratios for links evaluated under all scenarios:

Roadway link	Dir.	2008 V/C	V/C for future 2030 conditions with				
			Current Comp. Plan all sites	Subject APR and comp plan other sites	All APR's and rezoning	All APR's and rezoning as one cluster	Change 2030 comp plan to 2030 all APR's and rezoning
AM Peak Hour							
Sterling Rd (4 Lanes)	EB	0.99	NA	NA	NA	NA	
Sterling Rd (4 Lanes)	W B	0.58	NA	NA	NA	NA	
Sterling Rd (6 Lanes)	EB	NA	1.34	1.35	1.39	1.38	3.7 %
Sterling Rd (6 Lanes)	W B	NA	1.06	1.07	1.14	1.05	7.5 %
Rock Hill Rd (2 lanes)	NB	0.81	NA	NA	NA	NA	
Rock Hill Rd (2 lanes)	SB	0.32	NA	NA	NA	NA	
Rock Hill Rd (4 lanes)	NB	NA	0.87	0.88	1.02	0.99	17.2%
Rock Hill Rd (4 lanes)	SB	NA	0.68	0.72	0.93	0.66	36.7%
Innovation Ave (4 lanes)	EB	0.09	2.87	3.09	4.13	2.72	44%
Innovation Ave (4 lanes)	W B	0.03	0.77	0.92	1.56	1.41	103%
Innovation Ave (6 lanes)	EB	NA	1.90	2.06	2.75	1.81	44.7%
Innovation Ave (6 lanes)	W B	NA	0.51	0.62	1.04	0.94	104%
PM Peak Hour							
Sterling Rd (4 Lanes)	EB	0.79	NA	NA	NA	NA	
Sterling Rd (4 Lanes)	W B	0.96	NA	NA	NA	NA	
Sterling Rd (6 Lanes)	EB	NA	1.33	1.35	1.47	1.42	10.5%
Sterling Rd (6 Lanes)	W B	NA	1.33	1.34	1..45	1..42	9%
Rock Hill Rd (2 lanes)	NB	0.63	NA	NA	NA	NA	
Rock Hill Rd (2 lanes)	SB	0.61	NA	NA	NA	NA	
Rock Hill Rd (4 lanes)	NB	NA	0.97	1.02	1.37	1.21	41.2%
Rock Hill Rd (4 lanes)	SB	NA	0.70	0.73	1.06	0.98	
Innovation Ave (4 lanes)	EB	0.14	1.16	1.36	3.06	2.64	163.8%
Innovation Ave (4 lanes)	W B	0.05	2.96	3.26	5.09	4.27	72%
Innovation Ave (6 lanes)	EB	NA	0.78	0.90	2.04	1.76	126.7%
Innovation Ave (6 lanes)	W B	NA	1.98	2.18	3.39	2.84	43.4%

V/C > 1.0 is indicative of peak hour volume exceeding the capacity.

As can be seen from the table above the peak hour volume exceeds the capacity for Sterling Road and Innovation Avenue if the sites are built to the current comprehensive plan level even with a 6 lane section which is not in the current county/town's comprehensive plan.

If all the sites are developed as proposed the peak hour volume exceeds the capacity for Sterling Road, Rock Hill Road and Innovation Avenue which are the main roadways available to access the area. The volume to capacity ratio's change by a minimum of about 4% to a maximum of 164% when current comp. plan is compared with the proposals which is indicative of the inability of the roadway network to

accommodate the increase in traffic even with the improvements beyond the current comprehensive plan. Significant additional capacity improvements would be needed to support the additional traffic generated by the developments as proposed.

Regional Issues:

The Fairfax County comprehensive plan for this area shows Rock Hill Road being realigned to extended Davis Drive in Loudoun County. This improvement could influence the roadway network in the area and should be included in the traffic study.

The study did not consider the impacts on Route 28. The Dulles World center site rezoning included the evaluation of the Fairfax County APR nominations for CIT site and Dulles Metro Center site near the proposed metro station. The findings of this analysis indicate that if all the three nominations are approved following additional roadway improvements will be required:

1. Additional capacity beyond 6 lanes will be required along Route 606 to accommodate the traffic. This improvement is beyond the improvements for Route 606 shown in the current Loudoun County Comprehensive Plan.
2. Additional capacity beyond 4 lanes will be required along Innovation Avenue. This improvement is beyond the County comprehensive plan improvements.
3. Route 28 will have to be widened to 10 lanes. This improvement is not yet included in the 2030 CLRP for the region.
4. The analysis reaffirmed the need for a Rock Hill Road extension and the need for a 4 lane bridge over the Dulles Toll Road.

The analysis performed for this nomination shows that Sterling Road will have to be widened beyond 6 lanes to support the current comprehensive plan level of development for the 3 parcels. The Town of Herndon comprehensive plan does not include the widening of Sterling Road.

Summary:

As shown in the traffic study and mentioned above significant improvements beyond those in the current comprehensive plan will be needed. Majority of these long term improvements are currently unfunded and not included in the CLRP. The timing of these improvements is at best uncertain and may take several years before being constructed.

Advisory note to the County - Without the major improvements discussed above the roadway network can't support the proposed level of development. Several of the improvements needed are in Loudoun County and the Town of Herndon. The County should therefore continue the ongoing inter-jurisdictional coordination to resolve the regional issues and ensure that the highway improvements needed to support the additional density resulting from the APR process and rezoning for the adjacent parcel in Loudoun County are feasible and there is a consensus on the improvements needed. Additional improvements such as widening of Old Ox Road beyond six lanes will have to be included in the Loudoun County Comprehensive Plan. The current comprehensive plan recommendation of widening of Old Ox Road to 6 lanes is not included in the current

Constrained Long Range Plan (CLRP). Similarly widening of Innovation Ave beyond 4 lanes will also have to be added to the Comprehensive Plans. Widening of Rock Hill Road beyond 4 lanes will be needed which is not included in the current county comp plan and will have to be included in it. The Herndon Parkway / Sterling Road intersection fails under all the scenarios of the development. The Sterling Road link also fails under all scenarios. Improvements to this intersection and Sterling Road are not feasible and widening of this intersection and link is not included in the Town of Herndon Comprehensive Plan and will have to be added. The Rock Hill Road extension as depicted in the Fairfax County Comprehensive Plan may impact the network and site layout. Widening of Route 28 to 10 lanes is in the comprehensive plans but is not included in the Constrained Long Range Plan (CLRP). All these issues will play a significant role in the operations of the transportation network and need to be addressed. However, if the County decides to approve this development, the approval should be subject to or contingent to the funding being in place (in the VDOT six year plan or other sources) for the long term improvements in the current comprehensive plans and additional improvements beyond the comprehensive plan roadway improvements mentioned above. Alternatively phasing plan that indicates the level of development on site that can be accommodated without these improvements should be evaluated for approval.

If you have any questions, please feel free to call me at 703-383-2059.

Sincerely,

Peter K. Gerner, P.E.
Transportation Engineer

cc: Angela Rodeheaver
Michael Garcia

RECEIVED
Department of Planning & Zoning
OCT 14 2009
Zoning Evaluation Division

COMMONWEALTH of VIRGINIA

DAVID S. EKERN, P.E.
COMMISSIONER

DEPARTMENT OF TRANSPORTATION
14685 Avion Parkway
Chantilly, VA 20151
(703) 383-VDOT (8368)

October 8, 2009

Ms. Regina Coyle
Director of Zoning Evaluation
Department of Planning and Zoning
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5511

Re: Dulles Metro
Evaluation Report of Traffic Impact Analysis
APR 08-III-12UP

Traffic Engineering Comments:

Summary of the Key Findings:

The traffic study was prepared to complete the Area Plan Review process for an amendment to the Comprehensive Plan. The subject site is about 22 acres and is located west of Rock Hill Road. The overall area that encompasses the site is bounded by Dulles World Center, CIT, Old Ox Road, Innovation Avenue and Rock Hill Road.

Accuracy of the Traffic Impact Analysis:

The following are our comments for the traffic impact analysis. These are minor comment which will not drastically change results of the study, therefore, no more revisions or resubmissions are necessary.

1. We do not know why the CD provided with the report has both report and appendix in PDF "Secured" format.
2. Rock Hill Road at Old Ox Road has a right lane and a shared left/through lane compared to shared right/through lane and left turn lane shown in Figure 3. However, correct configuration is used in Synchro analysis.
3. The Scenario 4 traffic volumes in Figure 18 are not correct summation of traffic volumes from the five figures mentioned on Page 49. For example, check the right turn traffic from east bound Old Ox Road into Rock Hill Road.
4. There is a discrepancy in the description of recommendations on Page 55, Figure 19 and Synchro analysis in appendix for north bound approach of Rock Hill Road at Old Ox Road, Synchro analysis uses five lanes for the subject approach when both Figure 19 and recommendations are based on a 4 lane approach.

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5. Correct the number of right turn movement from Innovation Avenue to Baltimore Drive in Figure 23, it has number not properly legible.

Comments on the Recommended Improvements:

1. We recommend conducting signal warrant study before any decision for installation of signals at the proposed locations. Signal warrant study needs to be provided in a separate booklet and alternatives other than a traffic signal should be provided in the study. As of July 1, 2009, all warrant studies should be signed and sealed by a professional engineer registered in the Commonwealth of Virginia.

Additional VDOT Recommendations/Comments:

1. VDOT's turn lane length and taper requirements need to be followed for all proposed turn lanes.

Conclusions:

In general, the TIA is found acceptable.

Transportation Planning Comments:

The Dulles Metro site is located at the western edge of Fairfax County adjoining Loudoun County on the west. The major roadways in the vicinity of the site include Rock Hill Road to the east, Old Ox Road to the north, Route 28 to the west and Dulles Toll Road to the South. The site is approximately 22 acres and is divided into two landbays – Landbay A to the south and Landbay B to the north. The proposed development plan for the Dulles Metro site comprises of a mix of uses including 134,164 square feet of retail, 766,656 square feet of office in Landbay A and 800 apartments in Landbay B. A reduced development level of 36,235 square feet of retail and 326,113 square feet of office for landbay A is also evaluated. The current comprehensive plan development level consists of 90,603 square feet of office on landbay A and 193,214 square feet of office on landbay B.

The parcel south of the site is the CIT property for which a comprehensive plan amendment is submitted as part of the North County APR process. The parcel to the west of the site in Loudoun County is the Dulles World Center site for which a rezoning is currently under review. The study has evaluated the impacts of the site with the proposed APR of CIT and rezoning on the adjacent sites. The analysis is performed for seven scenarios which include varying levels of development of the Dulles Metro site and the adjacent parcels. The scenarios are identified below:

1. Scenario 1 - Analysis of Existing conditions
2. Scenario 2 – Analysis of future 2030 conditions without development
3. Scenario 3 – Analysis of future 2030 conditions with comprehensive plan development for Dulles Metro site and the relevant APR and rezoning for nearby properties.

4. Scenario 4 – Analysis of future 2030 conditions with APR nomination for Dulles Metro site and the relevant APR and rezoning for nearby properties.
5. Scenario 5 - Analysis of future 2030 conditions with APR nomination for Dulles Metro site and comprehensive plan development level for the nearby properties.
6. Scenario 6 - Analysis of future 2030 conditions with APR nomination for Dulles Metro site with reduced development on landbay A and comprehensive plan development level for the nearby properties.
7. Scenario 7 – Analysis of future 2030 conditions with APR land use for landbay B and comprehensive plan development for landbay A with comprehensive plan development level for the nearby properties.

Of all the scenarios mentioned above scenario 4 is the most applicable to the current proposals submitted. Therefore the main comments related to the highway network improvements are provided under this scenario, regional issues and summary.

Following are our comments on the study. The comments are organized into Study Comments to address the general study area, and traffic analysis for each scenario, Regional Issues and Summary:

Study comments

1. Study area: The intersections identified for the study include the following:
   - Shaw Road and Old Ox Road
   - Rock Hill Road and Old Ox Road
   - Herndon Parkway and Sterling Road
   - Innovation Avenue and Rock Hill Road North
   - Innovation Avenue and Rock Hill Road South
   - Route 28 and Innovation Avenue (assignment of traffic, not analysis) About 67 percent of the site traffic uses the intersection of Route 28 and Innovation Avenue to access the site. Therefore, this intersection should be analyzed in the study.

   The following links are identified for study the study:

   - Innovation Avenue (Route 28 to Rock Hill Road)
   - Rock Hill Road (Innovation Avenue to Route 606)
   - Sterling Road (Rock Hill Road to Herndon Parkway)

   Route 28 and Old Ox Road should be analyzed in the study to identify the long term improvements that would be needed to these links.

2. Existing area bicycle and pedestrian facilities – The traffic study indicates that there are no bike / ped facilities in the immediate area of the site. The study should provide a description of the planned bike/ped facilities on the study area roadways as identified in the County comprehensive plan. This will help identify the bike / ped improvements needed in the area to support the future metro station.
3. Scenario 1

- existing conditions analysis shows that the majority of the study area intersections and links operate at an acceptable level of service under the existing conditions. Provide the appendix number in the last sentence on Page 17.

4. Scenario 2 –
   - Page 18 2nd paragraph under background traffic volumes – The growth rate percentages shown in the text should be 2% annual growth rate for Route 28 and 3% annual growth rate for other study area roads. This comment is also applicable to the text related to growth rate for scenario 3.
   - The scenario 2 traffic future traffic volumes shown in Figure 11 are lower than the sum of the volumes in figures 5,7,8,9 and 10.
   - The traffic analysis indicates that the study intersections on Old Ox Road and Sterling Road operate at an unacceptable level under the background 2030 conditions with the current comprehensive plan level of development for the three sites. The intersections on Rock Hill Road operate at an acceptable level of service.
   - Link analysis shows that Rock Hill Road and Sterling Road operate at capacity and additional lanes may be needed to meet the demand on these roads.
5. Scenario 3 –
   - Scenario 3 traffic volumes shown in Figure 14 are less than the sum of the volumes in figures 5,7,8,12 and 13.
   - The traffic analysis shows that under this scenario to the intersection delay increases at the study intersections and the intersections on Rock Hill Road operate at unacceptable level of service during the PM peak hour.
   - Link analysis shows that Rock Hill Road and Sterling Road operate at capacity and additional lanes may be needed to meet the demand.
6. Scenario 4 –
   - Transit trip reductions – Provide a basis for the transit trip reductions of 10% of office and 33 percent for residential uses. The transit trip reductions as identified in the WMATA ridership survey are a function of the distance from the site to the metro station platform. If the WMATA ridership survey data is used to develop the transit trip reductions then the walking distance from the site to the station platform should be provided.
   - Traffic volumes shown for this scenario on Figure 18 as less than the sum of the volumes in figures 5,7,12,13,16 and 17.
   - The traffic analysis indicates that with the APR nominated development for the Dulles Metro site and CIT site and the current rezoning for the Dulles World Center site all the study intersections operate at an unacceptable level of service.
   - Link analysis shows that the Rock Hill Road and Sterling Road link operations degrades to unacceptable level of service.
   - The recommended improvements for this scenario include several improvements to the study intersection along with the following link improvements:
     a. Widening of Rock Hill Road to a 4 lane section – This improvement is identified in the County comprehensive plan but is not included in the CLRP. This improvement is currently unfunded.

b. Widening of Old OX Road to 6 lane section – This improvement is identified in the Loudoun County comprehensive plan but it is not included in the CLRP. This improvement is currently unfunded.
c. Widening of Sterling Road along with Old Ox Road to add one lane in each direction. The widening of Sterling Road is not included in the Town of Herndon Comprehensive plan and may not be feasible due to geometric / right of way constraints.
d. Traffic analysis performed using the lane configurations resulting from the above recommended improvements indicates that with the above recommended improvements the Rock Hill Road / Old Ox Road and the Sterling Road / Herndon Parkway intersections will operate at an unacceptable level of service. The intersection of Rock Hill Road south and Innovation Avenue will operate at LOS F during the PM peak hour.
e. Advisory note to the County – Significant improvements beyond those identified above will be needed to the roadway network under this scenario as discussed in the regional comments below. Given that many of the improvements are currently unfunded and the timing of the improvements is uncertain, if the County decides to approve this development, the approval should be subject to or contingent to the funding being in place (in the VDOT six year plan or other sources) for these improvements. Alternatively phasing plan that indicates the level of development on site that can be accommodated with these improvements should be evaluated for approval.

7. Scenario 5 –
   - Traffic volumes shown in Figure 20 for this scenario are lower than the sum of the volumes in figures 5,7,9,10,16 and 17.
   - The traffic analysis indicates that with the APR nominated development for the Dulles Metro site and current comp plan level of development for CIT site and the Dulles World Center site all the study intersections except the Innovation Avenue Rock Hill Road North intersection operate at an unacceptable level of service.
   - Link analysis shows that the Rock Hill Road and Sterling Road link operations degrades to unacceptable level of service.
   - The recommended improvements assumed are the same as for scenario 4. Traffic analysis indicates that with the recommended improvements the intersections of Old Ox Road / Rock Hill Road and Sterling Road / Herndon Parkway will operate at an unacceptable level of service.
8. Scenario 6 –
   - Traffic volumes shown in Figure 22 for this scenario are lower than the sum of the volumes in figures 5,7,9,10,17and 21.
   - The traffic analysis indicates that with the APR nominated reduced development for the Dulles Metro site landbay A and current comp plan level of development for CIT site and the Dulles World Center site all the study intersections except the Innovation Avenue Rock Hill Road North and South intersections operate at an unacceptable level of service.
   - Link analysis shows that the Rock Hill Road and Sterling Road link operations degrades to unacceptable level of service.

- The recommended improvements assumed are the same as for scenario 4. Traffic analysis indicates that with the recommended improvements the intersections of Old Ox Road / Rock Hill Road and Sterling Road / Herndon Parkway will operate at an unacceptable level of service.

9. Scenario 7 –
   - Traffic volumes shown in Figure 22 for this scenario are lower than the sum of the volumes in figures 5,7,9,10, 23 and 24.
   - The traffic analysis indicates that with the APR nominated development for landbay B and comprehensive plan development for landbay A and current comp plan level of development for CIT site and the Dulles World Center site all the study intersections except the Innovation Avenue Rock Hill Road North and South intersections operate at an unacceptable level of service.
   - Link analysis shows that the Rock Hill Road and Sterling Road link operations degrades to unacceptable level of service.
   - The recommended improvements assumed are the same as for scenario 4. Traffic analysis indicates that with the recommended improvements the intersections of Old Ox Road / Rock Hill Road and Sterling Road / Herndon Parkway will operate at an unacceptable level of service.

Regional Issues:

The Fairfax County comprehensive plan for this area shows Rock Hill Road being realigned to extended Davis Drive in Loudoun County. This improvement could influence the roadway network in the area and should be included in the traffic study.

The study did not consider the impacts on Route 28. The Dulles World center site rezoning included the evaluation of the Fairfax County APR nominations for CIT site and Dulles Metro Center site near the proposed metro station. The findings of this analysis indicate that if all the three nominations are approved following additional roadway improvements will be required:

1. Additional capacity beyond 6 lanes will be required along Route 606 to accommodate the traffic. This improvement is beyond the improvements for Route 606 shown in the current Loudoun County Comprehensive Plan.
2. Additional capacity beyond 4 lanes will be required along Innovation Avenue.
3. Route 28 will have to be widened to 10 lanes.
4. The analysis reaffirmed the need for a Rock Hill Road extension and the need for a 4 lane bridge over the Dulles Toll Road.

Summary:

As shown in the traffic study and mentioned above significant improvements beyond those in the current comprehensive plan will be needed. Majority of these long term improvements are currently unfunded and not included in the CLRP. The timing of these improvements in at best uncertain and may take several years before being constructed.

Advisory note to the County - Without these major improvements the roadway network can't support the proposed level of development. Several of the improvements needed are

in Loudoun County and the Town of Herndon. The County should therefore continue the ongoing inter-jurisdictional coordination to resolve the regional issues and ensure that the highway improvements needed to support the additional density resulting for the APR process and rezoning for the adjacent parcel in Loudoun County are feasible and there is a consensus on the improvements needed. Additional improvements such as widening of Old Ox Road beyond six lanes will have to be included in the Loudoun County Comprehensive Plan. Similarly widening of Innovation Ave beyond 4 lanes will also have to be added to the Comprehensive Plan. The Herndon Parkway / Sterling Road intersection fails under all the scenarios of the development. Improvements to this intersection are not feasible and widening of this intersection is not included in the Town of Herndon Comprehensive Plan. The Rock Hill Road extension as depicted in the Fairfax County Comprehensive Plan may impact the network and site layout. All these issues will play a significant role in the operations of the transportation network and need to be addressed. However, if the County decides to approve this development, the approval should be subject to or contingent to the funding being in place (in the VDOT six year plan or other sources) for the long term improvements. Alternatively phasing plan that indicates the level of development on site that can be accommodated without these improvements should be evaluated for approval.

If you have any questions, please call me at (703) 383-2059.

Sincerely,

Peter K. Gerner, P.E.
Transportation Engineer

cc: Angela Rodeheaver
Michael Garcia