APR
Area Plans Review

2008
BRAC

APPENDIX:

Fairfax County Department of Transportation

&

Virginia Department of Transportation (VDOT)

Comments on

Chapter 527 Transportation Impact Analysis for

BRAC APR 08-IV-1MV, 4MV

County of Fairfax, Virginia

MEMORANDUM

DATE: March 26, 2009

TO: Lindsay Mason
Policy and Plan Development Branch, FCDPZ

FROM: Jaak Pedak
Transportation Planning Section, TPD, DOT

SUBJECT: BRAC APR #08-IV-**1MV, 3MV, 4MV**
(Huntington APR Cluster)

The Department of Transportation offers the following comments regarding the proposed changes to the Comprehensive Plan indicated in the subject Area Plan Review (APR) nominations. Virginia Department of Transportation Chapter 527 review comments are forthcoming; our comments do not include comments from VDOT staff, and may be revised upon coordination with VDOT.

- The Huntington APR cluster includes three BRAC APR nominated sites that front on Huntington Avenue, a minor arterial facility, and have an influence on its traffic flow. Of the three sites analyzed, one site (3MV) is located close to the Huntington Metro Station (within a ½ mile walking distance). This site offers great opportunities for major trip reductions due to its proximity to metro, and meets criteria and conditions for a successful future transit-oriented development. The other sites analyzed (1MV and 4MV) are located a substantial walking distance from the metro station, and consequently cannot be expected to provide much traffic relief, nor be considered reasonable candidates for future transit-oriented development.

- Both the intersection level-of-service (LOS) and link capacity analyses (volume/capacity ratios) performed in these studies show substantially degraded traffic conditions if all three nominated APR's are adopted. Based on the link volume-to-capacity analysis for the entire APR cluster, Huntington Avenue would need to be widened from a 4 to a 6 lane facility in order to maintain LOS D (acceptable levels of congestion) in the AM and PM peak hours of travel. The County Transportation Plan would be expected to be amended to reflect a future 6 lane Huntington Avenue in order to meet the future traffic demand in this area under these proposals.

- Because APR's 1MV and 4MV took trip reductions in their analysis that we feel are not warranted, the peak hour traffic estimates in the analysis are considered to be underestimates of the actual expected traffic. In other words, FCDOT believes that traffic in the Huntington area will be even worse than estimated in these studies. Specifically,

Fairfax County Department of Transportation
4050 Legato Road, Suite 400
Fairfax, VA 22033-2895
Phone: (703) 877-5600 TTY: 711
Fax: (703) 877 5723
www.fairfaxcounty.gov/fcdot

robust estimates of transit usage were applied for the sites that are located 2/3 to 1 mile walk distance from the metro station.

- In addition, background traffic coming from the I-95 eastbound exit ramp and Telegraph Road/Huntington Avenue intersection was not fully accounted for in the estimates of future link volumes on Huntington Avenue.

- Because APR's 1MV and 4MV are located a substantial walk distance from the metro station, should the proposed plan amendments be adopted conditions should be included in the plan text requiring that the development on these sites provide high frequency shuttle bus service to/from the metro in order to reduce trips generated by the development.

- There is no mention in these studies of the grade-separated interchange improvement designated on the County Transportation Plan for the intersection of Richmond Highway & Huntington Avenue. The LOS analysis for the APR cluster shows overall LOS E conditions in the PM peak hour under future conditions at this location (many individual movements are also at LOS E and F, in both the AM and PM peak hours). On this basis, the interchange designation should be retained in the Comprehensive Plan, and right-of-way for it provided by future adjacent development.

- However, it is possible that the intersection could be brought to an overall LOS D condition in both peak hours, and individual failing movements successfully mitigated, if projected traffic levels can be reduced by not adopting all three nominated APR's. Under these conditions, there would be justification for removing the grade separation from the Plan.

- APR's 1MV and 4MV are both potentially impacted by development of a grade-separated interchange at Richmond Highway & Huntington Avenue. Site access constraints would be a major concern. APR 1MV proposes a 2.7 FAR mixed-use development at the southwest corner of the intersection. Given its distance from the metro station and access concerns, such a high FAR at this location is not supportable. In addition, the development would need to provide right-of-way for the interchange, driving the effective FAR for the proposed development much higher. It is not clear that the proposed development under 1MV could be accommodated under future conditions in the Huntington Avenue/Richmond Highway corridors.

- Based on the analysis submitted in these three APR traffic impact studies, FCDOT recommends that should all three nominations be adopted Huntington Avenue should be amended in the County Transportation Plan to reflect a 6-lane section between Telegraph Avenue and Richmond Highway. The grade-separated interchange currently designated at the intersection of Richmond Highway & Huntington Avenue should be retained in the

Plan. Alternatively, to avoid making these changes, only APR's 3MV and 4MV should be adopted.

- Specific traffic improvements and mitigation associated with development of these properties, particularly access and frontage road improvements, would need to be addressed at the time of rezoning.

Please contact Jaak Pedak, Transportation Planner, at jaak.pedak@fairfaxcounty.gov or at 703-877-5668 should you need further information or clarification of these comments.

JP:jp

cc: file
Leonard Wolfenstein, Transportation
Dan Rathbone, Transportation
Angela Rodeheaver, Transportation
Nick Perfili, Transportation

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Fairfax County Comprehensive Plan Amendment
Huntington Cluster APR comments
BRAC Nominations 08-IV-1MV, 3MV and 4 MV

Introduction

In preparation for review of BRAC-related APR applications, Fairfax County staff completed several efforts that became the starting point for applicants' subsequent Traffic Impact Analyses (TIA). These efforts included:

- **Grouping of applications**. Applications were grouped into "clusters" based on professional judgment of the common transportation network elements impacted by the proposals. All applicants were required to assess the impact of their individual site, as well as the cumulative impact of their cluster, on common road network elements identified by County staff in the vicinity of the cluster.

- **Traffic counts**. Turning volume traffic counts were conducted by Fairfax County during 2008 at approximately 40 intersections throughout the area of the applications, and were used as the basis for the County's future projections. Traffic count information was also made available to applicants to conduct their existing conditions operational and link capacity analyses.

- **Traffic Projections of Year 2030 "Background" Traffic**. The methodology used by Fairfax County to derive the projections is an important element of the overall process since these projections are part of the input applicants used to complete their analyses. Summary of our understanding of the methodology used, and brief comments, are included below. Year 2030 "Background" traffic conditions are those that would occur in the year 2030 with the existing Comprehensive Plan land use, and before consideration of the subject nominations. County guidelines to the BRAC APR applicants required analysis by each application of Existing Conditions, as well as the following three year-2030 scenarios: 2030 "Background" Conditions, 2030 Conditions with APR nominated site, 2030 Conditions with all APR-nominated sites in the cluster.

- **Planning-level Capacity Determinations**. Fairfax County Department of Transportation (FCDOT) recently developed New Capacity Level-Of-Service (LOS) boundaries for 7 facility types, for use in planning analysis of BRAC-related Comprehensive Plan amendments. Applicants used these capacities in their assessment of volume-capacity (v/c) conditions along specific road segments, for each of the four scenarios required by the County guidelines, listed above. Overview of the new planning-level capacities used in this process is included in the next section.

Overview of Input Data Development

1. **Traffic Projections of Year 2030 "Background" Traffic**. Fairfax County staff developed background 2030 traffic forecasts for the BRAC APR analyses, and provided these forecasts to applicants' representatives to maintain consistency in the forecasting process and analysis. For this land development stage (Comprehensive Plan Amendment), the focus was to produce reasonable link volumes (needed for capacity evaluations), rather than exact 2030 turn volumes. Since County staff also desired limited operational analysis of selected intersections, estimates of turn volumes were also derived for use by applicants' in their TIAs.

   Each cluster's existing AM and PM traffic counts (turns) were factored to 2030 by individual approach growth factors. The growth factors were applied only to approach volumes, and not the departure end. Estimates of future turn volumes were rounded.

   The Fairfax County travel demand model was used to derive growth factors. This model is based on the MWCOG/ TPB travel demand model, with additional detail for both road network and analysis zones (Fairfax County model has approximately 5 times the number of Traffic Analysis Zones, or TAZs, that the TPB model has). Growth factors were developed by comparing link volumes under 2 scenarios: "Existing" conditions (year 2008) and "2030" conditions. County staff used the latest information available at the time the process was initiated, and incorporated detailed data from recent subarea studies. The basic land use version used was modified 7.0, with data adjustments and enhancements derived from studies such as the Springfield Area Study (Huntington cluster area) and BRAC EIS (Fairfax Co. Parkway and Backlick Rd. area).

   Based on the information provided to date by County staff, we believe the above steps represent a reasonable methodology to estimate future 2030 traffic turning volumes, based on the information available to staff, adjusted with local detail from recent previous analyses, along with combined very experienced professional judgment.

2. **Planning Level Capacity Determinations**. As indicated in the 6/30/08 report *TPB Travel Forecasting Model, Version 2.2: Specification, Validation, and User's Guide*, the TPB Travel Forecasting Model uses **area type codes**, ranging from 1 (very dense) to 7 (less dense), based on both population density and employment density within 1 mile of a given traffic analysis zone (TAZ). Thus the area type code represents both the intensity of land use development and mix of home and job locations. This variable is also used as a basis for **highway link capacities for each roadway facility type**. For example, LOS E Capacity of a Major Arterial ranges from a low of 800 passenger vehicles per hour per lane (vphpl) in the densest area type (AT=1), to a high of 1,260 vphpl in the more rural areas (AT=7); the equivalent values for a Collector are 300 to 800 vphpl.

   Fairfax County Department of Transportation (FCDOT) recently developed New Capacities – Level of Service (LOS) boundaries for 7 facility types, for use in planning analysis of the BRAC-related Comprehensive Plan amendments. A review

of mid LOS E values suggests that the capacities assumed by FCDOT, compared to TPB's for the corresponding area types, may be relatively high for Freeways and Arterials, but similar or even slightly low for Collectors. For purposes of Comprehensive Plan Amendment applications, we believe the capacity and LOS values provided by FCDOT to the BRAC- APR applicants are a reasonable approximation for planning analysis. Volume/capacity ratios are used as one of the factors indicative of impact of traffic generation and potential need for mitigation and/or improvements. For more detailed analysis, these values should not substitute for capacities established based on detailed engineering analysis.

Brief Overview of Cumulative Impact of Huntington Cluster

3. **Additional trip generation; areas of understated / missing impact analysis; impact mitigation**.

   The cumulative Huntington Cluster proposed comprehensive plan amendments will generate approximately 1800 new vehicle trips during the weekday PM peak hour (total, both directions) along Huntington Avenue (primary access for all proposed Huntington Cluster nominations). This volume is proportionally equivalent to the capacity of about two additional lanes of an arterial roadway (one lane in each direction); this represents a measure of the substantial cumulative impact of the clustered nominations to the surrounding local road network.

   Detailed review of the submissions indicated future volumes were not all accounted for, resulting in under-estimation of impacts along Huntington Avenue.

   The reports do not include an analysis of impacts to the Beltway ramps most affected by the nominations (off-ramps in the AM; on-ramps in PM) or in road segments where the narrower cross-section may result in higher impacts (Route 1 South of Huntington Ave.).

   A more accurate assessment of the impact of the proposals will require corrected future link volumes, particularly for Huntington Ave., include analysis of impact to the ramps carrying additional traffic generated by the sites, and incorporate revisions based on the comments below. It is anticipated that a more detailed analysis will be submitted at the rezoning stage of any approved nomination, which will provide a full and accurate impact assessment, and identify mitigation measures and very specific improvements of impacted road elements.

Existing Condition Analysis Lane use and Traffic Volumes-

4. Existing lane use – The figure depicting the existing lane use shows 4 thru lanes on the NB approach of US 1 at its intersection with Huntington Ave. However, there are only 3 thru lanes on this approach and a very short right turn taper.

5. Existing lane use – The figure depicting the existing lane use shows 4 thru lanes on the SB approach of Telegraph Road at its intersection with Huntington Ave. However, the inside through lane is a shared left and the thru lanes and becomes a left turn lane at the downstream intersection of Huntington Ave and N. Kings Highway.

6. Existing peak hour volumes – The existing peak hour volumes don't match the spreadsheet volumes. For example the SB left turn volume for the intersection of US 1 and Huntington Ave. used in the analysis is less than the volumes shown in the County spreadsheet.

7. Show the existing volumes for the I-495 ramps which serve the area.

Future 2030 Conditions Analysis Lane use and Traffic Volumes-

8. Figure depicting the future lane use does not clearly represent the future grade separation of Huntington Ave and N. Kings Highway. The loop from SB Telegraph Road to Huntington Ave. is not shown. (Interchange configuration can be seen at the VDOT Woodrow Wilson Bridge website.)

9. The NB approach of US 1 at Huntington Ave. shows 4 through lanes. However, the limits of the I-495 / US 1 interchange extend up to this intersection and the NB approach will have 3 through lanes.

10. The traffic volumes for 2030 conditions analysis with current comp. plan don't match the volumes shown in the County spreadsheet.

11. The traffic volume from EB I-495 to Huntington Ave. is not shown in all the 2030 future conditions analysis scenarios.

12. The traffic volume from SB Telegraph Road to Huntington Ave. and North Kings Highway is not shown in all the 2030 future conditions analysis scenarios.

13. All the figures showing the future conditions don't show the correct future interchange configuration at I-495/Telegraph Road/Huntington Ave.

14. For the 2030 conditions show the ramp volumes for the 2030 current comprehensive plan conditions, 2030 with nomination and 2030 with all nominations in the cluster. Suggest showing these volumes at least for the ramps which will be used by the site traffic.

Existing and Future conditions analysis-

15. The existing conditions analysis for the intersection of Telegraph Road and Huntington Ave does not depict the actual conditions at this intersection. The inside SB through lane on Telegraph Road at Huntington Ave. is actually a shared through and left turn lane and becomes a left turn lane at the intersection with S. Kings

Highway. These two intersections are closely spaced and influence each other; both should be evaluated.

16. The link analysis for existing and future conditions should also be performed for US 1 and Telegraph Road links south of Huntington Ave. due to the change in number of lanes (narrower cross-section).

17. For the ramps used by site traffic, the reports do not include an analysis comparing ramp volumes with ramp capacities for the existing and future conditions (FCDOT provided applicants with ramp capacities for 7 road types, including ramps). Thus impacts to the ramps used by site traffic are not evaluated.

18. As noted above traffic volumes for some of the movements don't match the volumes in the County spreadsheet and as such the analysis needs to be revised for both the existing and future conditions.

19. The Huntington Ave. link analysis for future conditions does not account for the traffic volumes from EB I-95 to Huntington Ave and SB Telegraph Road to Huntington Ave. These volumes should be included in the link analysis for Huntington Ave. and the link analysis should be revised.

Comments to Mitigation Measures

20. For comprehensive plan amendments phase, applications should identify link level mitigation that may be needed to address the impacts. We understand that more detailed assessment of link level and intersection geometric improvements, contributions for off site improvements, TDM strategies etc., would be specifically identified through follow-up studies required at the rezoning stage in order to meet Fairfax County and VDOT Chapter 527 requirements.

21. Project Impact Evaluation – As noted above the impacts of these applications to the highway network are underestimated and adequate mitigation measures have not been proposed.

Comment Specific to 1 MV and 4 MV

Both the nominations are located a substantial walking distance from the Metro station (greater than one-half mile) and as such trip reductions may be difficult to realize without significant TDM measures and shuttle service.

The County Transportation Element of the Comprehensive Plan for this area calls for an interchange at the intersection of Huntington Avenue and Route 1. The analysis included in the studies indicates that the intersection will operate at LOS E during PM peak hour, even with the underestimated future volumes. Both the nominations are in the vicinity of this future interchange; the reports do not address the impacts of the future interchange on

the proposed nominations in terms of access, right of way, and the ability/feasibility to accommodate the location and level of development, given the future interchange.

Comment Specific to 4 MV –

Page 15 – Item 4 – A 15% internal capture rate is assumed. Per the guidelines the rate should be 5% for AM peak, 10% for PM peak and 15% for ADT when the mixed use includes residential and retail.

Page 29 – Figure 4-6 – Trip distribution shown is for Residential / Commercial / Office. However there is no office use proposed.