



MONTGOMERY COUNTY PLANNING DEPARTMENT
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

DATE: July 22, 2010

TO: Montgomery County Planning Board

VIA: Dan Hardy, Chief – Move Division *DKH*
Eric Graye, Supervisor – Move Division

FROM: Tom Autrey (301-495-4533), Supervisor, Move Division *TA*

SUBJECT: Chevy Chase Lake Sector Plan – Travel Forecasting Methodology and Study Area Boundary – Roundtable Discussion

STAFF RECOMMENDATION: Expand Transportation Local Area Model Boundary (Not Study Area Boundary) North to Include Connecticut Avenue to I-495 Beltway and South to Woodbine Street

Executive Summary

Staff briefed the Planning Board on the Chevy Chase Lake Sector Plan Scope of Work on July 1, 2010. During the discussion of the Scope of Work, the community expressed concern that the transportation analysis in the Plan would not specifically analyze the impact any future development in the Plan area might have on the ability of intersections along Connecticut Avenue north of the Jones Bridge Road and south of East West Highway to accommodate expected increases in traffic volume. Staff indicated the community's concern was understandable - given the scope of the Base Realignment and Closure (BRAC) process that will result in the relocation of Walter Reed Army Hospital to the National Naval Medical Center – and that a future roundtable agenda item could be scheduled to review the concern in more detail.

Staff has reviewed the community's concern in the context of (1) our standard approach to conducting travel forecasting for Master Plans, (2) the availability of relevant information related to existing and future (post relocation of Walter Reed) roadway conditions resulting from the BRAC study process, and (3) the profile of the existing peak hour trips within the plan area as provided by the initial results of our Travel / 3 regional model and the Local Area Model developed for the Chevy Chase Lake Sector Plan.

The staff review confirmed three important factors supporting the retention of the current boundary for the Local Area Model in all but one respect. First, the Travel / 3 regional model interface with the Local Area Model fairly depicts the existing and forecasted traffic volumes entering and exiting the plan area. Secondly, the Travel / 3 and the Local Area Model are

validated using traffic volumes that are consistent with those contained in the BRAC Final Environmental Impact Statement (FEIS). Finally, the Travel /3 regional model indicates that an estimated 90 percent of the peak hour trips entering and exiting the Plan Area are through trips – trips that neither begin or end within the Plan Area. In summary, there is an early confirmation in the modeling process that the traffic volumes in the Plan Area are in large part attributable to traffic moving through the area. Traffic attributable to new development within the relatively small Plan Area is unlikely to impact the operational performance of intersections outside of the Plan Area.

The one aspect of the network where the staff review found an adjustment to (or clarification of) the Local Area Model boundary was in order involved the segment of Connecticut Avenue between the Beltway and Jones Bridge Road. The programmed BRAC improvements include the addition of a southbound free right turn lane and a northbound through lane along this segment. The need for further analysis of the potential for some type of managed lane application along this segment is noted in the staff memorandum review of the Mandatory Referral scheduled for review by the Planning Board on July 22, 2010. This review – along with further review of potential modifications to the road network within and adjacent to the Chevy Chase Valley community - should also be part of the Chevy Chase Sector Plan.

The southernmost point of the Local Area Model is the intersection of Connecticut Avenue and Woodbine Street. The staff believes there is no technical basis for extending the boundary south of this location inasmuch as (1) the forecast methodology accounts for traffic entering and leaving the Plan Area at this location, (2) the southern boundary takes into account the nearest major intersection (East – West Highway) adjacent to the Plan boundary, (3) there is no proposal to widen Connecticut Avenue in this area, (4) the traffic volumes on Connecticut Avenue are considerably less south of Jones Bridge Road than they are north of Jones Bridge Road, (5) the location is consistent with the adjacent Traffic Analysis Zone boundary, and (6) given the large percentage of through traffic in the Plan Area, there is no basis at this time to assume that development with the relatively small Plan Area will measurably impact intersection performance along Connecticut Avenue south of East West Highway.

More generally, and given the findings noted above, the recommendation to retain the current boundary except for the adjustment to consider the segment of Connecticut Avenue between the Beltway and Jones Bridge Road is based upon the following considerations:

- Transportation analysis for master plans is based on a regional forecast model that considers areawide development and transportation system changes.
- The overall balance between transportation and land use is based on the operative Policy Area transportation review process, currently Policy Area Mobility Review (PAMR). The overall performance of the full Bethesda/Chevy Chase Policy Area will be considered in this review.
- The use of a Local Area Model allows consideration of localized access and circulation improvements at a more fine-grained analysis than supported by the regional model. The

Local Area Model resources are typically not necessary outside the area for which alternative planning and zoning recommendations are being considered.

- In the case of the Chevy Chase Lake Sector Plan, there are additional studies of note underway, including the BRAC mitigation studies and the Countywide BRT study. Based in part on the ongoing BRT study, the Department has a Master Plan of Highways (MPOH) functional plan amendment scheduled in the FY 12 work program. Should any analysis (BRAC, Countywide BRT, or sector plan) determine that a transportation plan amendment is needed beyond a current sector plan boundary, it could be incorporated into the MPOH plan amendment.

Finally, it should be noted that the Transportation Appendix of each of our more recent plans include more detail on the methodology used in travel demand forecasting, reaching a determination of network integrity through application of the Policy Area Mobility Review, reviewing intersection performance, and arriving at specific recommendations for improvements to the transportation network. One applicable Appendix is that of the White Flint Sector Plan. The link to that Transportation Appendix is provided below:

<http://www.montgomeryplanning.org/community/whiteflint/documents/Appendix6.pdf>

The discussion of the methodology begins on page 151 of the referenced Appendix 6.

Master Plan Travel Forecasting Process

The Planning Department uses two models to forecast travel demand.

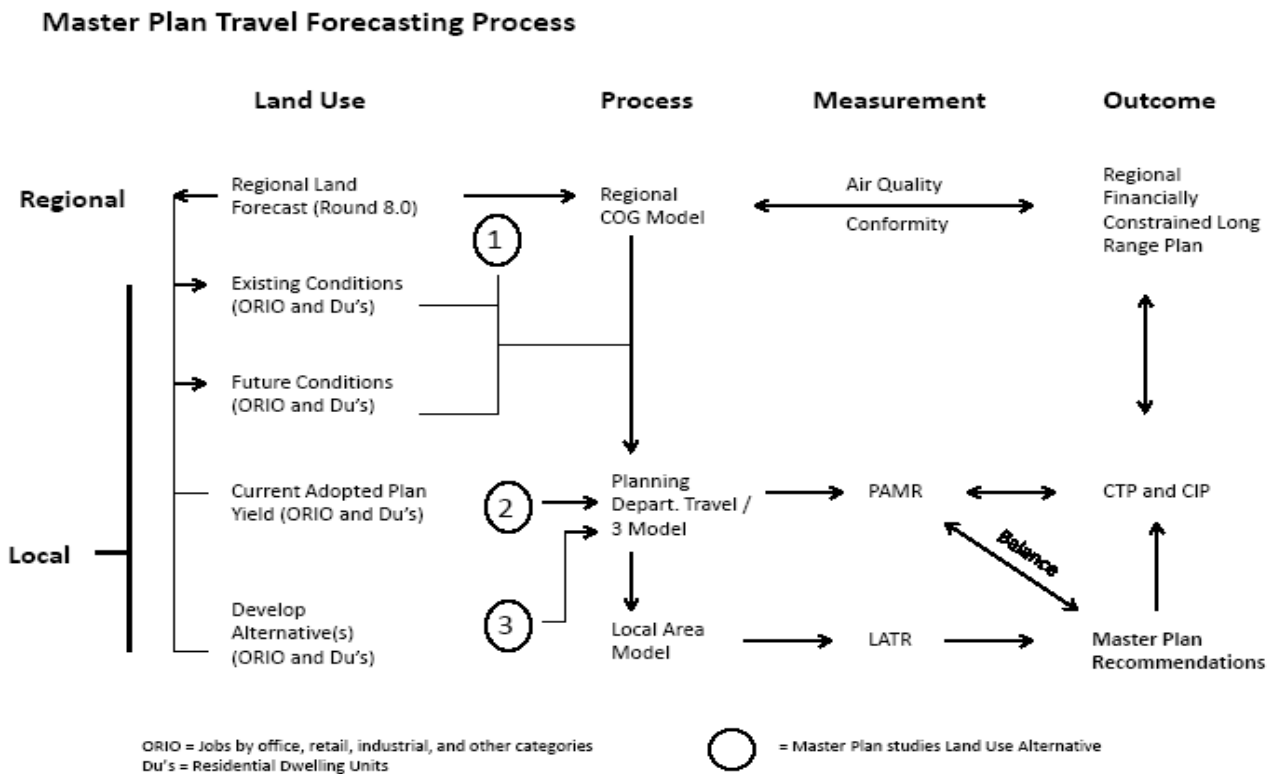
One model is a regional model. The Planning Department regional model is called “Travel / 3.” It is a model that takes into account the existing and future land use in the entire metropolitan Washington DC region. It is the regional model that produces the PAMR results.

The other model is called the Local Area Model. This model is comprised of a road network in the Plan Area that contains all of the roadways in the regional model in the Plan Area plus other master plan roadways. It is the Local Area Model that produces the estimate of the critical lane volumes for specific intersections within the Plan Area essentially the equivalent of the Local Area Transportation Review (LATR).

The Planning Department Travel / 3 regional model is first “run” using two land use scenarios – existing and future (see step 1 in Figure 1 below). The model results of the existing land use scenario are used to calibrate or adjust both the regional model and the Local Area Model. Once adjusted to reflect current traffic volumes and the existing regional road network, the future land use (as included in the latest approved COG demographic data) is used as input and both models are run again – this time with the future regional road network. This initial process is used to help determine if the results are reasonable before proceeding on to the next step (see number 2 in the chart below) that involves a more detailed (or finer grain) look at the specific plan area.

The second step (number 2 in Figure 1 below) in the process involves estimating the likely yield (sometimes referred to as a development envelope) of the current adopted plan for the Plan Area. This estimate is then used as input for the Travel / 3 regional model and the Local Area Model in order to provide a snapshot of the road network performance under the current adopted zoning. This information provides a baseline for the consideration of other future development scenarios. The final or third step is to use different development scenarios as input to the Travel / 3 regional model and the Local Area Model. These scenarios are often labeled “high” or “low”. The resulting model runs provide an indication of how the road network would likely perform under each scenario. Where problems exist with performance, adjustments (e.g., additional turn lanes, additional travel lanes, one way pairs, etc.) can be added to the Local Area Model to help determine what type of improvement might be required to bring the network in balance (a PAMR determination) and what intersections might still remain above the Policy Area critical lane volume (CLV) standard (a Local Area Transportation Review or “LATR” determination).

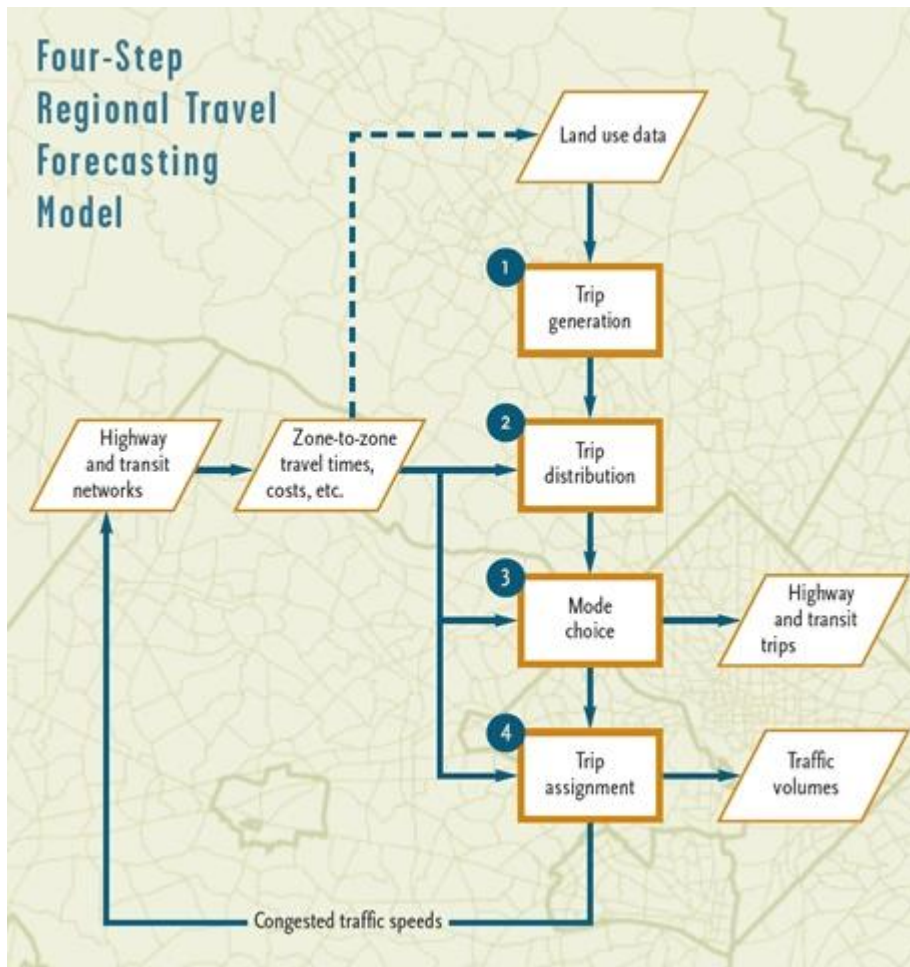
Figure 1



Travel Forecasting Model Basics

All three of the models (COG, Travel / 3, and Local Area Model) essentially use what is known as the “four-step” travel forecasting model process (see Figure 2).

Figure 2



In its simplest form, the model steps are often viewed in the following sequence:

- How many trips are on the network? (**Trip Generation**)
- Where are the trips going to and coming from? (**Trip Distribution**)
- How are the trips being made? (**Mode Choice**)
- What roads or transit (fixed) facility are carrying the trips? (**Trip Assignment**)

In addition to the four steps, there are two other important components of the process noted in Figure 2 that should be emphasized.

The first feature or component is that the process starts with land use data – existing and future. Land use (commercial and residential) is allocated by Traffic Analysis Zones (TAZ)’s. The future land use can be either that contained in the COG forecasts, the adopted Plan yield, or any one of a number of development scenarios. In the case of the Chevy Chase Sector Plan, all of these future scenarios will include development plans for the relocated Walter Reed Hospital, NIH, White Flint, Kensington, etc. that are included in the land use data for the regional model. The future development scenarios for the Chevy Chase Lake Plan Area will be represented by different assumptions regarding commercial and residential growth for each “sub (TAZ) zone” within the Plan Area.

The second feature or component concerns the manner in which the trips are assigned to the network. As noted in Figure 2, the overall speed and cost of the trip in large part determines the route the trip takes in the “trip assignment” phase of four step modeling process. This is important to remember when considering (one of) the reasons for the difference in the volumes on Connecticut Avenue north of Jones Bridge Road and those south of Jones Bridge Road. It is also important to remember with respect to the long term benefits of the Purple Line in providing an alternative to traveling both through and to/from the Plan Area in future years.

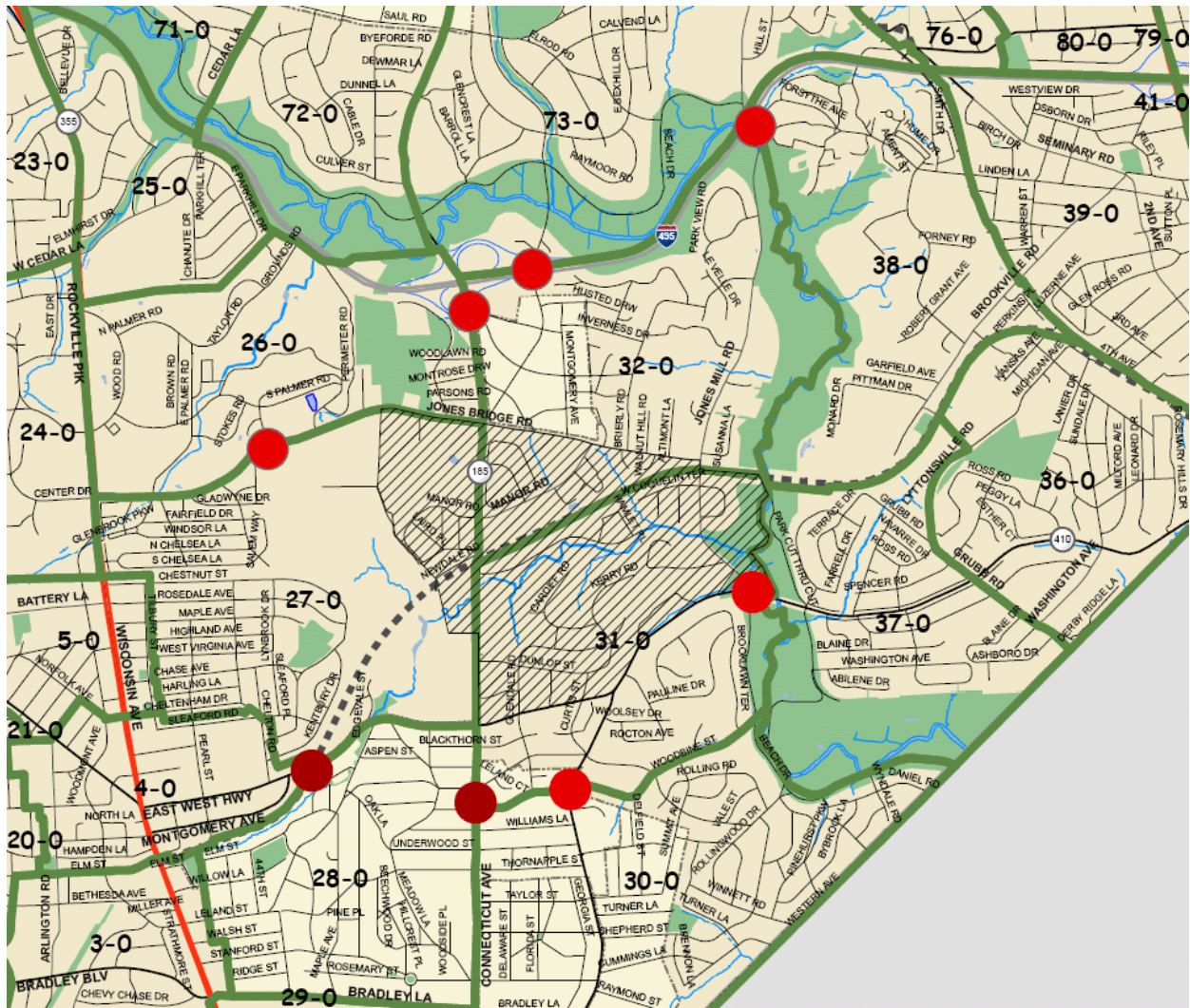
The Regional and Local Area Model for Chevy Chase Lake Sector Plan

Given the concerns of the community, it is useful to review the Plan Area in the context of the regional model. Figure 3 depicts the Plan Area. The boundary of the Local Area Model is essentially the same as the Plan Area – except for the now proposed extension on Connecticut Avenue north to the Beltway.

Extending out from the Local Area Model are locations or external “stations” that provide for the interface with the Travel / 3 regional model. These locations are where traffic enters or leave the Local Area Model and are shown with red circles in Figure 3. The traffic volumes at these locations are validated against both existing traffic counts and projections contained in the BRAC FEIS.

The “Study Area” (as opposed to the “Plan Area”) usually consists of the Plan Area plus (at a minimum) regional TAZ’s contiguous to the Plan Area. Land Use – both existing and forecast - for these Study Area TAZ’s are closely examined for conformity to the latest adopted plans.

Figure 3 – Regional Traffic Zones in Vicinity of Plan Area



Legend

26-0 = Regional Traffic Analysis Zone (TAZ) Number (border in green line)

//// = Plan and Local Area Model Boundary

 = External Station (Interface between Regional Model and Local Area Model)

The Local Area Model basically covers the same area as the Plan Area. The determination of the boundary for this area is based upon a number of factors. Most important is the Plan objective. In the case of station area plans like Chevy Chase Lake or Long Branch, one important objective is to examine the potential for, and profile of, Transit Oriented Development (TOD) within a reasonable walking distance of the proposed Purple Line station. It is unusual for the Plan Area (and therefore the Local Area Model) to extend beyond an area where additional development is

area where it is thought redevelopment will eventually occur (to include an area where it likely will not occur) requires more work (resources) for little additional information that cannot already be obtained with careful construction of the Local Area Model and quality control of the data interface between the regional model and the Local Area Model.