THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MCPB
Item No. 3
5-02-02

April 26, 2002

MEMORANDUM

TO: Montgomery County Planning Board

FROM: Richard C. Hawthorne, Chief
Ronald C. Welke, Supervisor
Transportation Planning

SUBJECT: Draft Revisions to the Local Area Transportation Review (LATR) Guidelines

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RECOMMENDATION

Transportation Planning staff recommends that the Planning Board approve the Draft Local Area Transportation Review (LATR) Guidelines dated May, 2002 for distribution to interested citizens and civic associations, traffic consultants, business representatives, developers, and public agencies for their review and comment.

A period of 60 days will be allowed for public comment. Staff will bring a final draft of the guidelines to the Planning Board in early July 2002 for your review and approval. Copies of the draft LATR Guidelines are available from the Transportation Planning unit in Room 105 of the Montgomery County Regional Office or by calling (301)-495-4525. Written comments should be submitted to Mr. Ron Welke by no later than June 21, 2002.

DISCUSSION

The LATR Guidelines were last revised in April, 1998. Since that time several significant actions have been taken by the County Council that suggest revisions to the guidelines: application of the "Silver Spring standard" to all Central Business District (CBD) and Metro Station Policy Areas; expiration of the Expedited Development Approval procedure (known as "Pay and Go") and "loophole" legislation; and their direction to make the guidelines the standard used for zoning, subdivision, special exception and mandatory referral cases brought before the Planning Board, the Board of Appeals, and the Hearing Examiner.

Transportation Planning staff is recommending several technical changes to the guidelines which include updated trip generation rates for child day-care centers, new trip generation rates for assisted living facilities, mini-storage facilities, and townhouses in the Silver Spring CBD, a new requirement for all traffic counts to be submitted in digital format, and other modifications to clarify and document current practice related to the scope of traffic studies.

RCH:RCW:cmd

2002 LATR Guidelines memo to PB.doc

Local Area Transportation Review Guidelines

Guidelines of the Montgomery County Planning Board for the
Administration of the Adequate Public Facilities Ordinance

DRAFT

May 2, 2002

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A. Background

County Code Section 50-35(k) (the Adequate Public Facilities Ordinance or APFO) directs the Montgomery County Planning Board to approve preliminary plans of subdivision only after finding that public facilities will be adequate to serve the subdivision. This involves predicting future demand from private development and comparing it to the capacity of existing and programmed public transportation facilities.

In accordance with the Annual Growth Policy, subdivision applications may be subject to two different types of tests. One is called the Policy Area Transportation Review (PATR). The other is called the Local Area Transportation Review (LATR).

B. Policy Area Transportation Review

The Policy Area Transportation Review divides the County into policy areas (Figure 1). These are geographic areas for which the adequacy of public facilities is addressed on an area-wide basis. With regard to transportation, a staging ceiling may be established for each policy area. The staging ceiling for a policy area is the maximum amount of land development, expressed as a jobs ceiling and a housing ceiling, that can be accommodated by the existing and programmed public transportation facilities serving the area, at an assigned ~~level of service~~ congestion standard.

C. Local Area Transportation Review

The *Local Area Transportation Review Guidelines* adopted by the Planning Board are to be used by applicants in the preparation of reports to the Planning Board, Board of Appeals, and the Hearing Examiner for the County Council, to determine the requirement for and the scope of a traffic study or review prepared by an applicant for zoning, subdivision, special exception and mandatory referral cases brought before any of these appointed bodies.

The intent of the *Local Area Transportation Review Guidelines* is to establish criteria for determining ~~whether or not~~ if development can or cannot proceed, whether staging ceiling is or is not available. ~~even if there is no staging ceiling constraint~~. Pursuant to the adopted Annual Growth Policy, The Planning Board must not approve a subdivision if it finds that an unacceptable peak-hour level of ~~service~~ congestion will result after taking into account existing roads, programmed roads, available or programmed mass transportation, and improvements to be provided by the applicant. If the subdivision will affect ~~an~~ nearby[1] intersection or roadway link for which congestion is already unacceptable, then the subdivision may only be approved if it does not make the situation worse.

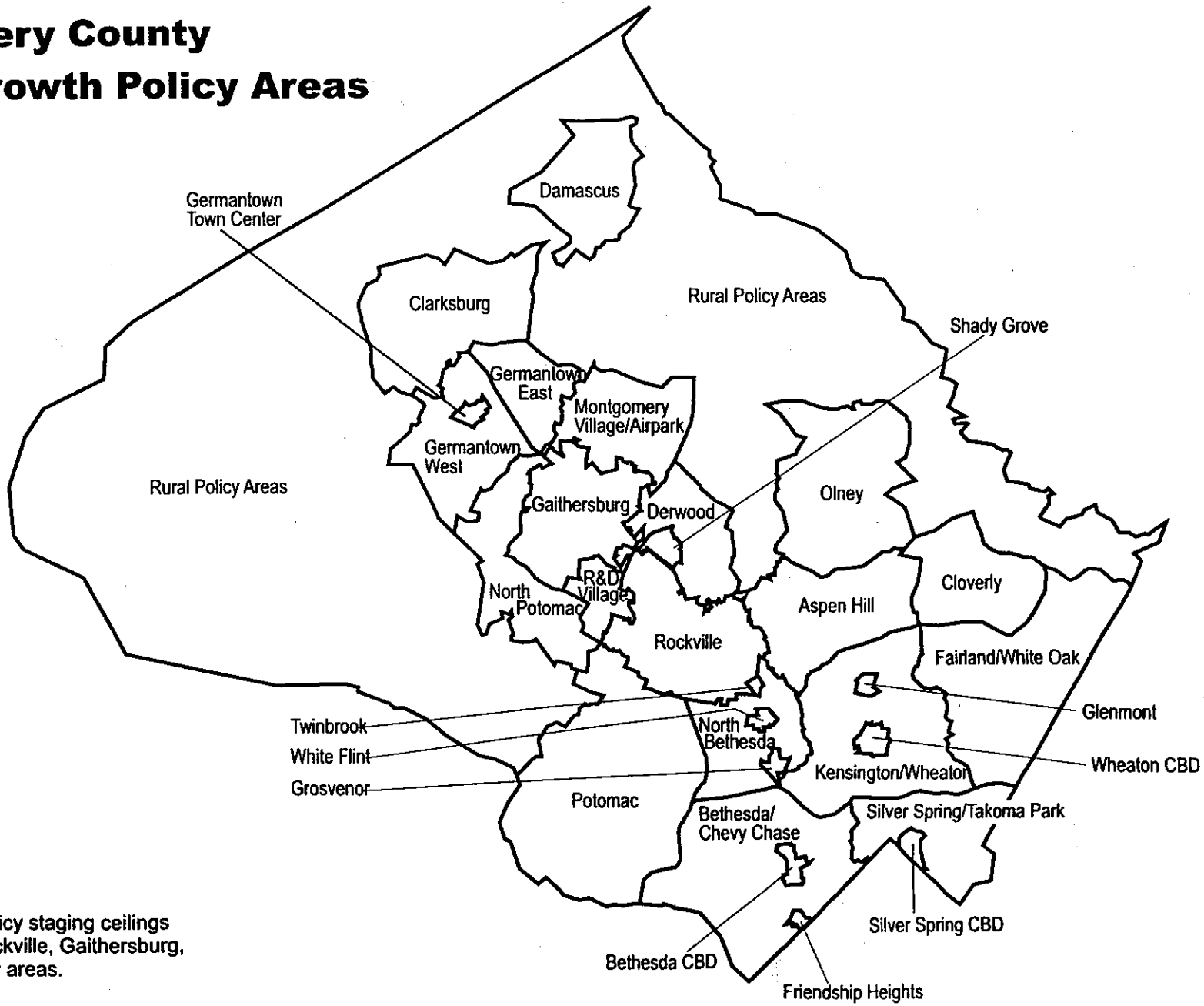
In situations where ~~this condition exists~~ an unacceptable peak-hour level of congestion will exist, the applicant, in consultation with Transportation Planning staff, the Montgomery County Department of Public Works and Transportation (DPWT) and/or the Maryland State Highway Administration, should use these procedures to develop recommendations for specific intersection improvements that would mitigate these areas of local congestion so that the Planning Board or another elected or appointed body could consider granting approval.

The procedure outlined in the LATR Guidelines is intended to provide a near-term "snapshot in time" of estimated traffic conditions ~~four~~ five to six years into the future and to present a reasonable estimate of traffic conditions at the time of development.

[1] See Section III.B.1

Map 1: Policy Areas by Traffic Zones

Montgomery County
Annual Growth Policy Areas



Annual Growth Policy staging ceilings do not apply in Rockville, Gaithersburg, and the rural policy areas.

II. Criteria for Screening Cases[2] for Local Area Transportation Review

~~All a~~Applicants will be required in ~~all~~ most instances to submit a traffic statement with the development application concerning the need for a Local Area Transportation Review (LATR). Transportation Planning staff will use the following criteria to determine whether and when the applicant needs to submit a traffic study.

In policy areas where there is an insufficient number of jobs and/or housing units; i.e., staging ceiling, available to support the application, the applicant will not be required to submit a traffic study with the development application until either staging ceiling capacity becomes available for that project or the applicant chooses to use the ~~Expedited Development Approval (EDA) procedure described in Section III.B. of the Guidelines~~ special procedures contained in the latest edition of the Annual Growth Policy (see Appendix D).

For purposes of establishing a queue date as required in the Annual Growth Policy in areas with insufficient ceiling capacity, the traffic statement shall serve as the traffic study until capacity becomes available. The applicant must update the ~~transportation~~ traffic statement ~~accordingly if development plans change~~to reflect changes in the development plan that may occur before capacity becomes available (i.e., specific proposed use or intensity of the use). When staging ceiling becomes available as a result of increased capacity from a programmed transportation improvement in the state's or county's capital program or some other adjustment in the policy area analysis, a traffic study must be submitted within six months.

In policy areas where there is sufficient staging ceiling capacity for the application and, in cases where an LATR is required (see II A below), a traffic study must be filed as a part of the development submittal. Transportation Planning staff will review the ~~transportation~~ traffic statement and/or traffic study and notify the applicant ~~at the Development Review Committee meeting~~ within two weeks of receipt if the statement or traffic study is complete and acceptable. If Transportation Planning staff determines, by reviewing the ~~transportation~~ traffic statement, that a traffic study is necessary, but one was not submitted with the original application, the applicant's application will not be considered complete until an acceptable traffic study is submitted. Figure 1 is an example of a checklist used by staff for accepting a traffic study.

Any modifications in the analysis identified by Transportation Planning staff's review are the responsibility of the applicant, after appropriate oral and/or written notice of the ~~problem~~ issues identified or change(s) required. Preparation and submission of modifications will not delay the acceptance date of a traffic study.

~~An LATR is required if the combination of the conditions identified in the following paragraphs is A and B, A and C, A, B, and C, or D.~~

A. Significantly Sized Project

The proposed development must be of sufficient size to have a measurable traffic impact on a specific local area to be considered in a local area transportation review. Measurable traffic impact is defined as a development that generates 50 or more total (i.e., new, pass-by and diverted) weekday peak-hour trips during the morning (7:00 to 9:00 a.m.) and/or evening (4:00 to 6:00 p.m.) peak period of adjacent roadway traffic. In certain circumstances, Transportation Planning staff may, in consultation with the applicant, require analysis of traffic conditions during a different two-hour weekday peak period; e.g., 6:00 to 8:00 a.m. or 5:00 to 7:00 p.m. to reflect the location ~~(i.e., upcounty)~~ or trip-generation characteristics of the site as a generator of traffic. ~~e.g., retail~~. In such circumstances, the trip generation rates for background and site traffic may need to be adjusted to reflect estimated traffic outside the standard weekday morning and evening peak periods.

[2] Special exception and mandatory referral cases that are not subject to the subdivision review process must follow these criteria (see Section 59-G-1.21a.9.i of the Zoning Ordinance). Zoning cases that require a traffic study must follow these criteria (see Section 59-H-2.4A of the Zoning Ordinance). Appendix F contains copies of these references.

Figure 1: Check List for Accepting Traffic Studies

Development Name: _____

Development Number: _____

☐ Stage of Development Approval: _____
(zoning, special exception, subdivision)

☐ Are the intersections counted for the traffic study acceptable?

☐ Are the traffic counts current; i.e., within one year of date of study?

☐ Were any traffic counts taken on or near holidays?

☐ Are there any "bad" traffic counts? (Compare to other recent counts.)

☐ Are lane-use configurations on each intersection approach correct?

☐ Is assumed background development correct?

☐ Do the improvement associated with the development mitigate site traffic and are they feasible? (Applicant should check feasibility of improvements with DPWT and/or SHA staff. Applicant should check the availability of right-of-way if needed for the improvements.)

☐ Are pending/concurrent plans that are likely to be approved by the Planning Board included in addition to "background development"?

☐ Is the amount of each background development used in the traffic study acceptable, based on the stage of development approval?

☐ Are the trip generation rates used in the traffic study acceptable?

☐ Are the assumptions for % new, % diverted, and % pass-by reasonable?

☐ Is trip distribution/assignment assumed in the traffic study acceptable?

Office _____ Residential _____

Other _____ Retail _____

☐ Were the correct lane use factors used?

☐ Are the critical lane volumes calculated correctly?

☐ Are the congestion standards identified correctly?

The number of trips shall be calculated using the following sources:

- For general office, retail, residential, ~~or~~ fast food restaurant, private school, child day-care center, ~~or~~ automobile filling station, senior/elderly housing, or mini-warehouse, use the formulas and rates provided in Appendix A and/or the tables provided in Appendix B.

- For all land uses in the Silver Spring, Bethesda, or Friendship Heights CBD Policy Areas, use the trip generation rates in Appendix C.

- For other land uses, use the latest edition of the *Trip Generation Report* published by the Institute of Transportation Engineers (ITE).

For some ~~subdivisions~~ land uses of a specialized nature, appropriate published trip-generation rates may not be available. In such cases, Transportation Planning staff may request that determination of rates for these land uses be a part of the traffic study. If special rates are to be used, ~~they must be approved by~~ Transportation Planning staff must approve them at the time the scope of the traffic study is ~~approved~~ agreed upon. ~~For developments that generate less than 50 peak-hour trips, it is assumed that the traffic impact is included in the area-wide aggregate review that constitutes the staging ceiling.~~

The following criteria shall be used to determine if a proposed development will generate 50 or more weekday peak-hour trips:

1. All peak-hour trips are to be counted even if, as part of the analysis, some of the trips will be classified as pass-by trips or trips diverted to the site from existing traffic.

2. All land at one location within the County, including existing development or land available for development under common ownership or control by an applicant, including that land owned or controlled by separate corporations in which any stockholder (or family of the stockholder) owns ten percent or more of the stock, shall be included.

For developments that generate fewer than 50 weekday peak-hour trips, it is assumed that the traffic impact is included in the policy-area-wide aggregate review that constitutes the staging ceiling. In such cases, a traffic study is not required.

An applicant shall not avoid the intent of this requirement by submitting piecemeal applications or approval requests for subdivision plats, preliminary or site ~~or~~ development plans, or building permits. However, an applicant may submit a preliminary plan of subdivision ~~plat~~ for approval for less than ~~fifty~~ 50 peak-hour trips at any one time provided the applicant agrees in writing that, upon ~~the next such~~ future applications, the applicant will comply with the requirements of the LATR when the total number of site-generated peak-hour trips at one location has reached ~~fifty~~ 50 or more. Then, a traffic study will be required to evaluate the impact of the total number of site-generated trips.

Transportation Planning staff may elect to waive these criteria if the development results in a net reduction in weekday peak-hour trips.

B. Congestion Standards

~~The proposed development must be located near roadway, intersections, or sets of intersections that equal or exceed the congestion standard for the policy area.~~

Critical lane volume (CLV) standards for intersections that are adopted for each policy area in the most-recently adopted Annual Growth Policy are shown in Table 1. Transportation Planning staff maintains an inventory of intersection traffic data based upon traffic counts collected ~~primarily~~ by the Montgomery County Department of Public Works and Transportation (DPWT), the Maryland State Highway Administration (SHA), and private traffic consultants for purposes of providing applicants with a preliminary assessment of conditions in the vicinity of the proposed ~~subdivision~~ development.

Table 1: Local Area Transportation Review Intersection Congestion Standards by Policy Area

Congestion (Critical Lane Volume) Standards	Policy Area	
1450	Rural Areas	
1500	Clarksburg Damascus Gaithersburg City Germantown Town Center	Germantown West Germantown East Montgomery Village/Airpark
1525	Cloverly Derwood North Potomac	Olney Potomac R&D Village
1550	Aspen Hill Fairland/White Oak	Rockville City
1600	North Bethesda	
1650	Bethesda/Chevy Chase Kensington/Wheaton	Silver Spring/Takoma Park
1800	Bethesda CBD Friendship Heights CBD Glenmont Grosvenor Shady Grove	Silver Spring CBD Twinbrook Wheaton CBD White Flint

~~Table 2 presents link volumes for various roadway types may be considered by Transportation staff when reviewing LATR projected link volumes. Link volumes are a primary element when Policy Area growth ceilings are established through the Annual Growth Policy.~~

~~Table 2: Local Area Transportation Review Link Volume Congestion Standards~~

~~Number of Lanes~~	~~Capacity Basis~~	~~A~~	~~B~~	~~C~~	~~D~~	~~E~~	~~F~~
~~2 (1 each way)~~	~~2-way flow~~	~~0 <-100~~	~~100 – 350~~	~~250 – 700~~	~~700 – 1200~~	~~1200 – 2400~~	~~>2400~~
~~4 (2 each way)~~	~~Max flow, 1-way~~	~~0 – 1000~~	~~1000 – 1600~~	~~1600 – 2200~~	~~2200 – 2800~~	~~2800 – 3400~~	~~>3400~~
~~6 (3 each way)~~	~~Max flow 1-way~~	~~0 – 1500~~	~~1500 – 2400~~	~~2400 – 3300~~	~~3300 – 4200~~	~~4200 – 5100~~	~~>5100~~

~~Source: Highway Capacity Manual, Special Report 209, Third Edition, Updated October 1994 by the Transportation Research Board of the National Research Council, Washington, DC.~~

~~Two-lane roads (See Chapter 8): level terrain, lane width 11 feet, shoulder width 2 feet, design speed 50 mph, no passing permitted (100% no passing zone), peak hour factor = 1.0, trucks and other heavy vehicles 3%, and directional traffic split = 50/50. Computed values using these parameters are rounded for use in the above table.~~

~~Multi-lane arterials and major roads (see Chapter 7, page 7-20, Table 7-11): level terrain, divided roadway, lane width 12 feet, shoulder width 6 feet, free flow speed 50 mph, peak hour factor = 0.9, trucks and other heavy vehicles 2.5%, 20 access points/mile. Values from Table 7-11 are rounded for use in above table.~~

~~Note, These values apply only in areas of the county where the spacing between signalized intersections exceeds two miles. In areas where traffic signals are installed at intervals of two miles or less, intersections will be assumed to control traffic capacity unless otherwise determined by staff. 2) Since link capacity is affected by variations in lane width, shoulder width, percent trucks, and other factors, the applicant is encouraged to calculate a specific value for the roadway conditions on the specific link that he is required to analyze using the most current edition of the Highway Capacity Manual.~~

~~C. Development Level Approaching the Staging Ceiling~~

~~To determine if staging ceiling is a factor to be considered, Transportation staff will add the type of development proposed: 1) to completions of similar types of development since the staging ceiling base year and 2) to all similar types of developments approved since the base year. If the resulting total development of the type proposed is 95% or greater than the approved staging ceiling for the area, a traffic study will be required. As an example, if the staging ceiling for an area is 2,000 households, and if the sum of the housing completions, all approved developments, and the proposed development is greater than 1,900, then the applicant will be requested to undertake a traffic study in accordance with these Guidelines.~~

~~D. Parcels Subject to Article IV, Chapter 8, Montgomery County Code~~

~~An LATR that complies with these Guidelines is also required for non-residential pre-1982 recorded lots or parcels, i.e., 'loophole properties', before an applicant can receive building permits, if the proposed improvement will generate 50 or more new peak hour trips. In determining the number of peak hour trips for a non-residential development on pre-1982 recorded or approved lots or parcels, the total of 50 peak hour trips is determined as the incremental increase generated by the proposed development rather than the total of the trips generated by existing development plus new development. Therefore, if Transportation staff determines that less than 50 additional peak hour trips would be generated, the developer will be able to receive building permits until July 25, 2001, provided they have registered in accordance with Section 8-12.~~

~~All lots or parcels recorded pre-1982, registered or not, are exempt from the requirement to submit an LATR traffic study or statement if the application involves a renovation or reconstruction of an existing building of less than 5,000 square feet of gross floor area.~~

C. Exceptions to the General Guidelines

There are several policy areas where there are exceptions or additions to the general Local Area Transportation Review process:

~~1. For analysis of property located within the Friendship Heights CBD Policy Area, as defined by the 1997 Sector Plan, the procedures outlined in the current Adopted Annual Growth Policy will be followed.~~

1. In the Potomac Policy Area, only developments that Transportation Planning staff consider impacting the following intersections will be subject to Local Area Transportation Review: a) Montrose Road at Seven Locks Road, b) Democracy Boulevard at Seven Locks Road, c) Tuckerman Lane at Seven Locks Road, d) Bradley Boulevard at Seven Locks Road, e) Democracy Boulevard at Westlake Drive, f) Westlake Drive at Westlake Terrace, and g) Westlake Drive at Tuckerman Lane.

~~3. Development located within the Shady Grove West Policy Area, as defined in the Gaithersburg Vicinity Master Plan, will, in addition to Local Area Transportation Review, be subject to restrictions or recording in accordance with the staging plan contained in the Master Plan.~~

2. Development in the Bethesda CBD, Friendship Heights CBD, Glenmont, Grosvenor, Shady Grove, Silver Spring CBD, Twinbrook, Wheaton CBD and White Flint Policy Areas ~~development~~ will be reviewed in accordance with Section V of these guidelines. These procedures ~~are in keeping with~~ provide specifics to satisfy the general guidelines included in the adopted Annual Growth Policy (AGP).

3. ~~As of January 1998,~~ The following policy areas have been designated Metro Station Policy Areas in the most-recently adopted AGP: Bethesda CBD, Friendship Heights CBD, Glenmont, Grosvenor, Shady Grove, Silver Spring CBD, Twinbrook, Wheaton CBD, and White Flint. This designation means that the congestion standard ~~is raised to 1,800~~ equals a critical lane volume of 1800 (see Table 1) and that development within the area is eligible for the AGP's Alternative Review Procedure for Metro Station Policy Areas if a Transportation Management Organization (TMO) exists. This procedure allows a developer to meet LATR requirements by 1) ~~paying~~ making a ~~fee (called the~~

~~development approval payment or DAP),~~ payment as designated in the AGP, 2) joining and supporting a TMO, and 3) ~~making best efforts to meet the mode share goals set by the Planning Board.~~ mitigating 50% of their total weekday morning and evening peak-hour trips. Both residential and non-residential projects are eligible for the procedure.

4. Area-specific trip-generation rates have been developed for the Bethesda, ~~and~~ Friendship Heights, and Silver Spring CBDs. (See Appendix C.)

III. Method and Preparation of Local Area Transportation Review Traffic Study

A. General Criteria and Analytical Techniques

The following general criteria and analytical techniques are to be used by applicants for subdivision, zoning, special exceptions, and mandatory referrals in submitting information and data to demonstrate the expected impact on public intersections and roadways by the ~~users, i.e., residents, patrons, or employees of the~~ vehicle trips generated by the proposed development. In addition to the consideration of existing traffic associated with ~~present~~ current development, applicants shall include in the analysis potential traffic that will be generated by their development and other nearby approved but unbuilt development; i.e., background, to be included in the analysis.

The traffic study for the proposed development under consideration must include in background traffic all developments approved by the Planning Board or other public body (i.e., the Board of Appeals) ~~more than two weeks~~ prior to the submission of a preliminary plan application or acceptable traffic study, whichever is later. Information and data on ~~other nearby recorded lots and~~ approved but unbuilt developments, i.e., background development, ~~critical~~ nearby intersections for study, trip distribution and traffic assignment guidelines, and other required information will be supplied to the applicant by Transportation Planning staff within 15 working days of receipt of ~~the~~ a written request.

For a zoning case, Transportation Planning staff may initiate a meeting with the applicant, the Hearing Examiner and interested groups or individuals to establish the scope of the traffic analysis.

Transportation Planning staff may require that applications in the immediate vicinity of the subject application submitted simultaneously or within the same time frame be included in background traffic, even if the Planning Board has not approved them. If a preliminary plan is approved after a traffic study has been submitted for another project and both require improvements for the same intersection(s) or link(s), then the traffic study for the pending preliminary plan must be updated to account for the traffic and improvements from the approved preliminary plan.

The traffic study should be submitted ~~to the Development Review Division~~ along with the ~~preliminary plan~~ application or within 15 days prior to or after the applications submission date. If a traffic study is submitted at the same time as the ~~development~~ application, the applicant will be notified concerning the acceptance of the traffic study ~~at~~ within fifteen working days of the Development Review Committee meeting at which the preliminary plan is to be discussed. If not submitted before the Development Review Committee meeting, Transportation staff has 15 working days after submittal to notify the applicant as to whether or not the traffic study is accepted.

For an intersection improvement to be considered for more than one preliminary plan, the improvement must provide enough capacity to allow all the preliminary plans participating in the improvement to satisfy the conditions of LATR. ~~approved but not built to pass LATR. If a preliminary plan is approved after a traffic study has been submitted for another project and both require intersection improvements for the same intersections, then the traffic study for the pending preliminary plan must be updated to account for the traffic and improvements from the approved preliminary plan.~~ An intersection ~~or link~~ improvement may be used by two or more developments if construction of the improvement has not been completed and open to the public. In order to be considered, the improvement must provide sufficient capacity to:

1. ~~Reduce the CLV *below* the intersection or link congestion standard for the applicable policy area for the total traffic condition that includes traffic from each development using the improvement,~~ Result

in a calculated CLV in the total traffic condition that is less than the congestion standard for that policy area, or

2. Mitigate the traffic impact if the calculated CLV in the total traffic condition ~~is above~~ exceeds the intersection ~~or link~~ congestion standard for the applicable policy area. Mitigation is achieved when the CLV in the total traffic condition that includes traffic from each development *with* the improvement is equal to or less than the CLV in the background traffic condition without the improvement.

Improvements conditioned upon development must be completed, i.e., construction contract awarded, prior to issuance of any building permits. ~~Completion~~ Construction of an improvement by one applicant does not relieve other applicants who have been conditioned to make the same improvement of their responsibility to participate in the cost of that improvement.

As indicated in the AGP, in policy areas where staging ceiling capacity is available, the applicant has six months from the date of acceptance of his application to obtain preliminary plan approval unless the applicant ~~gets~~ is granted an extension. If ~~an extension is granted by~~ the Planning Board grants an extension, Transportation Planning staff will determine if the traffic study needs to be updated.

B. Scope of Traffic Study

At a meeting or in written correspondence with Transportation Planning staff, the following aspects of the traffic study will be proposed by the applicant and/or provided by staff and agreed upon:

1. intersections that are to be included in the traffic study. The number of intersections to be included will be based upon the trips generated by the proposed development. As a general guideline, Table 2 indicates the number of signalized intersections from the site in each direction to be included in the traffic study, based on the maximum number of weekday peak-hour trips generated by the site.

Table 2: Signalized Intersections from Site in Each Direction to Be Included in a Traffic Study

Maximum Weekday Peak-Hour Site Trips	Number of Intersections in Each Direction
50 – 250	1
250 – 750	2
> 750	3

However, Transportation Planning staff, in cooperation with the applicant, will use judgment and experience in deciding the intersections to be studied. The urban areas of the county, including Central Business Districts and Metrorail Station policy areas, have more closely-spaced intersections, suggesting that the key intersections be studied.

Other factors, including geographic boundaries; e.g., parks, interstate routes, the type of trip generated (i.e., new, diverted or by-pass), and the functional classification of roadways, will be considered by Transportation Planning staff in reaching a decision.

2. ~~nearby~~ approved but unbuilt (i.e., background) development to be included in the traffic study. As a general guideline, background development to be included in the traffic study will be in the same geographic area as the intersections to be studied, as discussed in 1) above.

3. the adequacy of ~~available~~ existing turning movement counts and need for additional data. Generally, traffic counts less than one year old when the traffic study is submitted are acceptable. Traffic counts should not be conducted on a Monday or a Friday, during summer months when public schools are not in session, on federal or county holidays, on the day before or after federal holidays, or during the last two weeks of December and the first week of January.

4. factors, e.g., diurnal distribution, to be used to compute the trip generation of the proposed development and developments that are to be included as background

5. the directional distribution~~(s)~~ and assignment of trips generated by the proposed development and developments ~~that are to be~~ included as background, in accordance with the latest publication of "Trip Distribution and Traffic Assignment Guidelines" by Transportation Planning staff.

6. mode split assumptions, if the traffic study is to include reductions in trips generated using vehicle-based trip factors

7. transportation projects ~~included~~ fully funded for construction within five years in the ~~Approved Road Program~~ County's Capital Improvement Program (CIP) or the State's Consolidated Transportation Program (CTP) that are to be ~~considered~~ included in the analysis, along with techniques for estimating traffic diversion to major new programmed facilities. (See Appendix F for projects eligible to be included in a traffic study for a zoning case.)

8. ~~link adequacy and trends in traffic growth~~ traffic circulation and/or safety concerns related to site access; e.g., facilities with 800 or more seats or which can otherwise accommodate 800 or more people.

9. a feasible range of types of traffic engineering improvements associated with implementing the development

10. the number, size, and use of buildings or types of ~~houses~~ dwelling units on the site

11. queuing analysis, if required (see Section V)

~~B. Expedited Development Approval~~

~~On October 28, 1997, the County Council amended the Annual Growth Policy as follows:~~

> ~~*"Beginning November 1, 1997 until October 31, 2001, an applicant for a preliminary plan of subdivision need not take any action under 1. Policy Area Transportation Review or 2. Local Area Transportation Review if the applicant pays to the County an expedited development approval excise tax, in an amount and at times set by County law. However, the applicant must include in the application for preliminary subdivision plan approval all information that would be necessary if the requirements for Local Area Transportation Review applied."*~~

~~This legislation was signed by the County Executive and is effective February 9, 1998.~~

~~To satisfy the intent of the Expedited Development Approval EDA legislation, the background traffic should be added to the existing and site generated traffic and analyzed using the following two procedures:~~

~~1. Determine a) the traffic from all nearby background developments that were previously approved, but not completely built out, excluding those approved under the EDA legislation and b) any unbuilt transportation improvements that were conditioned by the Planning Board to be constructed or partially/fully funded at impacted intersections by those background developments.~~

~~2. Determine as in 1 above plus a) the traffic from all nearby background developments approved under the EDA legislation and b) any transportation improvements identified in the traffic studies prepared for these developments.~~

~~Traffic analyses for applications under EDA shall include all information required under Section IV. "Findings for Inadequate Facilities."~~

~~Should an applicant decide to undertake an improvement rather than make the EDA payment, the applicant may undertake any identified improvement that mitigates the applicant's traffic impact.~~

IV. Findings for Inadequate Facilities

The Transportation Planning staff report to the Planning Board ~~staff report~~ will present findings for each of the categories identified below and ~~give~~ make ~~a~~ recommendations relating to the adequacy of the transportation facilities. The Planning Board will use these findings and recommendations, as well as comments and recommendations from the public, the Montgomery County Department of Public Works and Transportation, the Maryland State Highway Administration, and/or incorporated cities/towns within the County as appropriate, to make its overall findings as to adequacy of public facilities for the proposed development.

A. Transportation Solutions

If the applicant's traffic study identifies a local area ~~problem~~ condition that exceeds the congestion standard for that policy area, Transportation Planning staff will notify the applicant, the Montgomery County Department of Public Works and Transportation (DPWT) and/or the Maryland State Highway Administration (SHA) of ~~the problem~~ the condition so that they can work together to develop a feasible solution to ~~resolve the problem~~ mitigate the impact. Once the applicant, Transportation staff, and staff of DPWT and/or SHA have identified and agreed that there are feasible ~~remedial~~ transportation solutions to obtain adequate local transportation capacity, these solutions will be incorporated as conditions of approval in the Transportation Planning staff report. These solutions could include additional traffic engineering or operationsng changes beyond those currently programmed, or non-programmed transit or ridesharing activities that would make the overall transportation system adequate. In the case of developments that elect to use ~~EDA~~ one of the special procedures in the Annual Growth Policy (AGP), the solutions must be identified and agreed to as above but will not be made conditions of approval. (See Appendix D.)

B. Degree of Local Congestion

Transportation Planning staff will identify the degree of intersection congestion calculated for the peak hour of both morning and evening weekday peak periods using the Critical Lane Volume method and the congestion standards by policy area listed in Table 1. Intersections typically are the constraint in urbanized areas. For intersections that straddle policy area boundaries, the higher congestion standard shall be used.

~~In certain circumstances, Transportation staff may request that the traffic study identify the degree of link congestion on selected roadway sections forecasted for the morning and/or evening peak periods as shown in Table 2. In general, the total peak hour link volume should not exceed the volume associated with Level of Service E shown in Table 2 after combining the existing, background, and trips generated by a proposed development.~~

Transportation Planning staff will present findings ~~of the degree to which~~ comparing the calculated ~~traffic exceeds~~ CLVs with the ~~capacity~~ congestion standard(s) of the nearby intersections ~~and/or roadway links~~. In establishing the LATR congestion standards, an approximately equivalent transportation level of service that balances transit availability with roadway congestion in all policy areas of the County is ~~permitted~~ assumed. In areas where greater transit accessibility and use ~~age~~ exist, greater traffic congestion is permitted. ~~This relationship was first adopted in the FY 95 AGP.~~ Table 1, which shows the ~~level of service standard and the~~ Critical Lane Volume congestion standard adopted by the County Council for each policy area, is based on this concept.

If the congestion standard is exceeded under background conditions, an applicant ~~agrees~~ may be required to construct an intersection improvement ~~or roadway project~~, or provide a traffic mitigation program that would result in ~~better~~ equal or improved operating conditions (as measured by CLV) than those that would occur without the applicant's project. Under these conditions, ~~then~~ local congestion will be considered less severe even though the calculated ~~level of service~~ CLV may still exceed the ~~critical lane volume~~ congestion standard for the policy areas in which the development is located.

C. Unavoidable Congestion

Transportation Planning staff will identify the degree to which alternate routes to serve the trips associated with the proposed development can be considered. (See Section VII. F. Trip Assignment.) If there are no appropriate alternate routes for the traffic to use to avoid the congestion, then it must be assumed that trips from the proposed development will increase the local area congestion. It is not appropriate to anticipate that the trips associated with the development would use local streets unless such streets have been functionally classified as being suitable for handling background and site-generated trips, e.g., rural primary, arterial, business district, or higher classifications.

D. Transit Availability

Transportation Planning staff will identify the degree to which transit (i.e., bus service, proximity to a Metrorail station) or ridesharing activities can be considered to mitigate vehicle trips generated by the proposed development. If it is physically or fiscally ineffective for the public agencies to provide transit or ridesharing services, then it must be assumed that trips from the proposed development will increase the local area congestion. If there is sufficient potential for serving the proposed development with transit or ridesharing services, then it is possible that a transit alternative or trip mitigation program could be developed for modifying the demand contributing to the local traffic congestion.

E. Project-Related Traffic

Transportation Planning staff will identify the degree to which ~~the~~ local traffic congestion ~~problem~~ is directly attributable to the proposed development. Traffic from three sources will be measured: 1) existing traffic, 2) trips generated by the sum total of all nearby approved but unbuilt developments (i.e., background development), and 3) total trips generated by the proposed development. ~~The term "nearby" is variable, depending upon the size and location of the proposed development.~~ The more that trips from the proposed development contribute to ~~the~~ local traffic congestion ~~problem~~, the greater the assumed severity of the local impact.

V. Procedures for Application in the ~~Silver Spring~~ Central Business District (CBD) and Metro Station Policy Areas

Except where noted, the technical definitions and procedures applied in ~~the Silver Spring~~ Central Business District (CBD) and Metro Station Policy Areas will be consistent with those defined elsewhere in these guidelines. In reviewing the adequacy of traffic flows, the following criteria will be applied. The conditions will be applied to total traffic volumes (i.e., existing plus background plus site traffic) in the peak hour ~~in~~ of both the morning and evening weekday peak ~~hours~~ periods.

If these conditions cannot be achieved, and no mitigating measures are programmed that would result in an acceptable ~~tolerable level of service~~ CLV, the transportation system in the ~~Silver Spring~~ CBD or Metro Station Policy Area may not be deemed adequate to support the development.

1. Any intersection with a CLV of 1,800 or less will, ~~normally~~ in most cases, be considered ~~tolerable~~ acceptable with no further analysis required. However, Transportation Planning staff may require the queuing analysis noted in ~~D~~2 below if they believe that abnormally long queuing might be present due to unusual conditions even at intersections with a CLV below 1,800. Transportation Planning staff shall define those intersections for which special analysis is required in writing to the applicant ~~This shall be done~~ as early in the review process as possible, and no later than ~~one week after submittal~~ official written acceptance of a complete traffic study. The CLV will be calculated in accordance with the procedures defined in these guidelines.

2. If the CLV is over 1,800, a queuing analysis shall be performed. Existing queues shall be measured by the applicant and total traffic (i.e., existing, background and site) and planned roadway and circulation changes shall be taken into account. The average queue length in the peak hour ~~shall~~ should not extend more than 80 percent of the distance to an adjacent signalized intersection, provided the adjacent signalized intersections are greater than 300 feet apart. The 80 percent standard provides a margin of safety for peaking. If adjacent signalized intersections are closer together than 300 feet, the average

queue length in the peak hour ~~shall~~ should not extend more than 90 percent of the distance to the adjacent signalized intersection. The signal timing assumed for this analysis must be consistent with the crossing time required for pedestrians in paragraph V.D.2.b. of these guidelines.

In reviewing ~~Silver Spring~~ CBD and Metro Station Policy Area applications, the following criteria will be used:

1. Total traffic is defined as the existing ~~conditions~~ traffic, plus trips from approved but unbuilt developments, plus the trips from the proposed development. ~~At the time of the Planning Board hearing, the traffic study must reflect all approved preliminary plans. It may be necessary for an applicant to update the traffic study so that the results presented to the Planning Board reflect all approved developments as of the date of the Board meeting. Updated information may be presented through a supplemental memorandum to the Transportation staff.~~

2. Critical intersections are those within the CBD or Metro Station Policy Area, defined by Transportation Planning staff, generally adjacent to the site, or allowing site traffic to enter an arterial or major road ~~either Georgia Avenue or Colesville Road~~. In some cases, where site volumes are large, additional intersections ~~along these two roads, but~~ within or contiguous to the CBD or Metro Station Policy Area, may be identified by Transportation Planning staff for inclusion in the ~~analysis~~ traffic study.

~~3. Roadway and circulation changes included in the approved Silver Spring Transportation System Management Program may be assumed as available for purposes of analysis in the traffic study. The applicant shall show estimates of trip changes from any Transportation System Management District actions included in the analysis.~~

3. Vehicles can be assigned to parking garages encountered on their trip into the CBD or Metro Station Policy Area. ~~Some accounting for garage~~ The capacity of parking garages must be accounted for ~~will be necessary,~~ based on guidance from the Transportation Planning staff and consultation with DPWT staff.

4. Trip generation rates for ~~new~~ background and site development traffic ~~will be~~ are contained in Appendices A, B, and C. ~~those agreed upon by the Council when it approved the Silver Spring Amendment as part of the FY 88 AGP. (See Appendix C.) Rates for background development will be provided by the Transportation staff to reflect the probable impacts of trip reduction measures in the CBD.~~

The following information will be gathered by Transportation Planning and DPWT staffs and provided to the applicant for use in the traffic study.

1. ~~A base set of~~ Existing traffic counts ~~and average queue lengths~~ at selected locations. The applicant shall be required to update these data if the application is submitted more than one year after the data were initially gathered.

2. Trip generation rates

3. Directional distribution(s) (See Appendix E.)

4. Parking garage capacity information and locations of future public parking garages

5. A listing of background developments.

In addition to the traffic flow analysis, applicants must demonstrate that the following guidelines are not violated by their site development:

1. Access points for site parking and loading must be located so that their use will not interfere with traffic flows on the adjacent streets or with access points to neighboring buildings or transit terminal areas. Access directly onto the major roads ~~arterials (Colesville Road and Georgia Avenue) in the CBD~~ should be avoided, but if proposed it will be considered in the context of the application.

2. Pedestrian safety shall be assessed based on the following characteristics:

   a) Conflicts between pedestrians and vehicles of all types accessing the site shall be minimized. Actions shall be taken to ensure pedestrian safety on and adjacent to the site.

   b) The applicant must provide evidence from the DPWT that the pedestrian phase of the traffic signal cycle for each approach at the adjacent and critical intersections will provide at all times at least enough time for ~~slower~~ pedestrians to completely cross the street ~~traveling~~ walking at a ~~minimum~~ speed of 3.0 feet per second. Where possible, enough time should be provided to completely cross while ~~traveling~~ walking at 2.5 feet per second. The intent of this requirement is to provide enough time for people who tend to walk slower to be able to cross at 3.0 feet per second if they leave the curb the moment the walk indication for that movement is displayed. People who are able to walk at 4.0 feet per second or faster will be able to start crossing any time the walk indication appears and complete the crossing during the flashing don't walk pedestrian clearance period.

These aspects must be documented in the traffic study submitted as part of the development application. In the analysis, all pedestrian movements ~~shall be~~ are assumed to be made at the street level.

Each applicant should have a proposed participation plan for trip reduction measures, prepared in conjunction with the area's Transportation Management District, if applicable, and Transportation Planning staff.

Applicants may be required by the Planning Board to participate in some of the roadway improvements included in ~~the Traffic Management Program~~ a capital program. This participation, which will be proportional to the development impact on the ~~system~~ improvement, will be ~~defined~~ determined by the staffs of Transportation Planning, DPWT and the Maryland State Highway Administration. If the traffic study identifies changes to roadway or other transportation-related activities that are required to mitigate the impact of the proposed development on or adjacent to the development site, these changes will be the responsibility of the applicant as part of satisfying Local Area Transportation Review (LATR) procedures.

VI. Methods to Reduce Local Area Transportation Review Impact

A. Methods to Reduce Local Area Transportation Review Impact For Residential Development

1. Construction of Sidewalks and Bike Paths

The applicant of a residential development may choose to reduce LATR impact by constructing off-site sidewalks or bike paths, which provide safe access from the proposed or an existing development to any of the following uses:

1) Public facilities (e.g., school, library, park, or post office)
2) Recreation centers
3) Retail centers that employ 20 or more persons at any time
4) Transit stations or stops (rail or bus)
5) Adjacent development(s) or private amenity space; e.g., sitting area, theater, community center.
6) Existing sidewalks or bike paths

These uses must be within one-quarter mile ~~radius~~ of the edge of the proposed or an existing development and, for transit stations or stops, the frequency of transit service must be at intervals of ~~20~~ 30 minutes or less during the morning and evening peak periods.

2. Provision of Bus Shelters

An applicant may also choose to reduce LATR impact by constructing a bus shelter, including a concrete pad, to reduce weekday peak-hour trips. The bus shelter must be within one-quarter mile of ~~the~~ the edge of the proposed or an existing development and the frequency of the transit service must be at intervals of ~~20~~ 30 minutes or less during the weekday ~~peak~~ morning and evening peak periods.

For any off-site improvement shown ~~below~~ in Table 3, pedestrians and bicyclists should be able to safely cross any roadway to reach their destination. The applicant may provide improvements that Transportation Planning staff agrees would increase the safety of the crossing.

3. Provision of Bike Lockers

An applicant may also choose to reduce LATR impact by ~~constructing~~ providing bike lockers for a minimum of eight bikes at an activity center located within a one-mile radius of the edge of the development.

4. Provision of Real-Time Transit Information

An applicant may also choose to reduce LATR impact by providing electronic signs at bus shelters or transit centers that indicate real-time transit information, .e.g., the arrival of the next bus on a given route.

The maximum reduction for any development is ~~20 trips each for construction of external sidewalk(s), bus shelter(s), or off-site bike path(s), and two trips for bike locker construction.~~ related to the congestion standard for that policy area. In policy areas with higher congestion standards, the maximum reduction in trips is higher in recognition of the desire to encourage transit use in these cases. (See Table 3.)

The size of the development is a factor in determining the reduction in the number of trips that will be allowed for the construction of a sidewalk or bike path. The applicant may get a credit of one trip for each 130-foot section of sidewalk or bike path for 100 DUs within one-eighth mile of the off-site sidewalk or bike path being constructed. In other words, if there are 100 housing units within one-eighth mile of an off-site sidewalk or bike path being constructed, and the length of the off-site sidewalk or bike path is 1,300 feet, then the applicant may get credit for 10 trips. For bus shelter construction or real-time transit information sign installation, a residential applicant may get a credit of one trip reduction for every 25 dwelling units within one-quarter mile of the new shelter, with a maximum of 10 trips per bus shelter or sign.

Table 3 identifies trip reduction options for residential development. Any or all of the options may be used for a given application.

~~Table 3. Trip Reduction For Residential Development~~

~~Construction of:~~	~~Reduction in Trips During the Peak Hour~~	~~Maximum Reduction~~	~~Maximum Reduction per Development~~
~~Off-site sidewalks~~	~~1 trip per 130 linear feet, with a minimum of 100 DUs within 1/8 mile either side of the new sidewalk~~	~~10 trips per sidewalk link~~	~~20 trips~~
~~Bus shelters~~	~~1 per 25 DUs with1/4 mile of the shelter~~	~~10 trips per shelter~~	~~20 trips~~
~~Bike lockers (eight locker facility)~~	~~1 trip per locker set~~	~~1 trip per locker set~~	~~2 trips~~
~~Off site bike paths~~	~~1 trip per 130 linear feet, with a minimum of 100 DUs within 1/8 mile either side of the new bike path~~	~~10 trips per bike path link~~	~~20 trips~~

Table 3: Trip Reduction for Residential Development

Construction of:	Off-Site Sidewalks and Bike Paths	Bus Shelters	Bike Lockers (eight-locker facility)	Real-Time Transit Information Signs
Reduction in Trips during the Peak Hour	1 trip per 130 linear feet, with a minimum of 100 DUs within 1/8 mile either side of the new sidewalk	1 per 25 DUs within ¼ mile of the shelter	1 trip per locker set	1 per 25 DUs within 1/4 mile of sign
Maximum Trip Reduction	10 trips per sidewalk or bike path link	10 trips per shelter	1 trip per locker set	10 trips per sign
Maximum Trip Reduction per Development				
Congestion Standard				
145--1600	20 (2600 feet)	20 (2 shelters)	2 (2 sets)	20 (2 signs)
1650-1800	30 (3900 feet)	30 (3 shelters)	3 (3 sets)	30 (3 signs)

B. Methods to Reduce Local Area Transportation Review Impact For Non-Residential Development

1. Construction of Sidewalks and Bike Paths

For non-residential *office* development, an applicant may choose to reduce LATR impact by constructing off-site sidewalks and/or bike paths that provide safe access from the proposed or existing office development to any of the following uses:

1) Transit stations or stops (rail or bus)
2) Retail centers that employ 20 or more persons at any time
3) Housing projects
4) Other office centers
5) Existing sidewalks or bike paths

For non-residential *retail* development, an applicant may choose to reduce the LATR impact by constructing off-site sidewalks and/or bike paths that provide safe access from the retail development to the following uses:

1) Transit stations or stops (rail or bus)
2) Office centers that employ 100 or more persons
3) Housing projects
4) Other retail development
5) Existing sidewalks or bike paths

These uses must be within a one-quarter mile ~~radius~~ of the edge of the proposed or an existing development. For transit stations or stops, the frequency of the transit service must be at intervals of ~~20~~ 30 minutes or less during the morning and evening peak periods.

2. Provision of Bus Shelters

An applicant may also choose to reduce LATR impact by constructing a bus shelter, including a concrete pad, to reduce weekday peak-hour trips. The bus shelter must be within one-quarter mile of the edge of the proposed or an existing development and the frequency of the transit service must be at intervals of 30 minutes or less during the weekday morning and evening peak periods.

For any off-site improvement shown in Table 4, pedestrians and bicyclists should be able to safely cross any roadway to reach their destination. The applicant may provide improvements that Transportation Planning staff agrees would increase the safety of the crossing.

3. Provision of Bike Lockers

An applicant may also choose to reduce LATR impact by providing bike lockers for a minimum of eight bikes at an activity center located within a one-mile radius of the edge of the development.

4. Provision of Real-Time Transit Information

An applicant may also choose to reduce LATR impact by providing electronic signs at bus shelters or transit centers that indicate real-time transit information, e.g., the arrival of the next bus on a given route.

The maximum reduction for any development is related to the congestion standard for that policy area. In policy areas with higher congestion standards, the maximum reduction in trips is higher, in recognition of the desire to encourage transit use in these areas. (See Table 4.)

The size of the development is a factor in determining the reduction in the number of trips that will be allowed for the construction of a sidewalk or bike path. The applicant may get a credit of one trip for each 130-foot section of sidewalk or bike path for 100 employees within one-eighth mile of the off-site sidewalk or bike path being constructed. In other words, if there are 100 employees within one-eighth mile of an off-site sidewalk or bike path being constructed, and the length of the off-site sidewalk or bike path is 1,300 feet, then the applicant may get credit for 10 trips. For bus shelter construction or real-time transit information sign installation, a non-residential applicant may get a credit of one trip reduction for every 25 employees within one-quarter mile of the new shelter, with a maximum of 10 trips per bus shelter or sign.

Table 4 identifies trip reduction options for non-residential development. Any or all of the options may be used for a given application.

~~Table 4. Trip Reduction For Non-residential Development~~

~~Construction of:~~	~~Reduction in Trips During the Peak Hour~~	~~Maximum Reduction~~	~~Maximum Reduction per Development~~
~~Off-site sidewalks~~	~~1 trip per 130 linear feet, with a minimum of 100 employees within 1/8 mile of the new sidewalk~~	~~10 trips per sidewalk link~~	~~20 trips~~
~~Bus shelters~~	~~1 per 25 employees within 1/4 mile of the shelter~~	~~10 trips per shelter~~	~~20 trips~~
~~Bike Lockers (eight locker facility)~~	~~1 trip per locker set~~	~~1 trip per locker set~~	~~2 trips~~
~~Off-site bike paths~~	~~1 trip per 130 linear feet, with a minimum of 100 employees within 1/8 mile of the new bike path~~	~~10 trips per bike path link~~	~~20 trips~~

Table 4: Trip Reduction for Non-Residential Development

Construction of:	Off-Site Sidewalks And Bike Paths	Bus Shelters	Bike Lockers (eight-locker facility)	Real-Time Transit Information Signs
Reduction in Trips during the Peak Hour	1 trip per 130 linear feet, with a minimum of 100 employees within 1/8 mile either side of the new sidewalk	1 per 25 employees within ¼ mile of the shelter	1 trip per locker set	1 per 25 employees within 1/4 mile of the sign
Maximum Reduction	10 trips per sidewalk or bike path link	10 trips per shelter	1 trip per locker set	10 trips per sign
Maximum Trip Reduction per Development				
Congestion Standard				
1450-1600	20 (2600 feet)	20 (2 shelters)	2 (2 sets)	20 (2 signs)
1650-1800	30 (3900 feet)	30 (3 shelters)	3 (3 sets)	30 (3 signs)

C. Procedures for Application of Section VI - Trip Reduction Methods

The determination of the total number of trips generated by a proposed development will be made prior to any reduction. ~~In other words, i~~If a proposed development generated more than 50 total peak-hour trips, a traffic study would be required. If an applicant proposes a trip reduction program, the reduction could be accounted for in the traffic study. At the request of Transportation Planning staff, an applicant proposing these improvements will be required to gather data on current bus stop or pedestrian activity to aid in evaluating effectiveness.

The applicant may only apply a trip reduction method after the total number of peak-hour trips is determined using standard trip rates. Trip reduction derived from this section may not be applied in policy areas where the Annual Growth Policy does not allow the application of the ~~alternative review~~ special procedure for limited residential development. Trip reductions derived from this section may not be applied to staging ceilings.

~~This method shall remain in effect until July 1, 1999. Six months prior to the end of this period, Transportation staff will gather information on how this section was applied by applicants and on any problems that may have arisen during the period. Selected locations will be used during the three-year period for before and after analysis. Transportation staff will report their findings to the Planning Board with recommendations on whether to continue to apply these regulations, amend them, or discontinue their use.~~

VII. Methods for Assigning Values to Factors Used in a Traffic Study

A. Capital Improvements Program Definition

If the applicant finds it necessary or appropriate in the preparation of the traffic study to incorporate programmed transportation improvements, they must rely upon the County's Capital Improvement Program (CIP) or the State's Consolidated Transportation Program (CTP). ~~Approved Road Program (ARP) to identify those roads are that defined "as programmed." The ARP is a list published at least twice a year by DPWT which shows all roadway improvements contained in the CIP or CTP and indicates projects that may be used in conducting an LATR.~~ For a project to qualify to be used in an LATR, the project must be fully funded for construction within five years in the CIP or CTP. ~~meet two criteria: 1) 100 percent of the construction funds need to be already appropriated and 2) the start of construction needs to be shown in the ARP as being within a two-year (24 months) time period.~~ (See Appendix F for zoning cases.)

B. Trip Generation

Trip generation equations and rates are shown in Appendix A for ~~seven~~ six general land uses: general office, retail, residential, fast food, ~~child day-care centers~~, private schools/educational institutions, and automobile filling stations with or without ancillary uses for car washes, convenience stores, and garages. Equations for calculating trips from other land uses or zoning classifications can be obtained from the latest edition of the *Trip Generation* Report published by ITE. Assistance with the calculation of trips can be obtained from ~~the~~ Transportation Planning staff and/or use of the trip tables ~~of trips by development sizes~~ in Appendix B. In the Silver Spring, Bethesda, and Friendship Heights CBDs, different rates reflecting special transit encouragement programs are used as shown in Appendix C.

The rate for a retail site over 200,000 square feet GLA will be set after discussion with Transportation Planning staff and analysis by the applicant of one or more similar-sized retail sites within Montgomery County. In lieu of data collection, a retail rate set at two times the latest edition of ITE's *Trip Generation* Report rate may be used.

Transportation Planning staff is authorized to make minor technical changes to Appendices A and B, as needed, to reflect new information or to correct errors. Therefore, the user should check with the Transportation Planning staff ~~Division~~ to ensure the latest version is being applied. Transportation Planning staff will have copies of the latest version available for distribution upon request.

In some cases, adjustment of the trips from the equations may be appropriate. Examples include the effect of pass-by trips for retail, including fast food restaurants, child day-care centers, and automobile filling stations, and the total trips from mixed uses such as office and retail. These will be considered on a case-by-case basis, using the best available information concerning each site situation. There may also be instances where a site will have special considerations that make it appropriate to deviate from the rates shown in the referenced sources. These proposed deviations in trip rates could be determined by ground counts of comparable facilities, preferably in Montgomery County, and will ~~can~~ be considered by ~~the~~ Transportation Planning staff and used with their concurrence. ~~of the Planning Board~~.

~~For applications involving a larger office building or group of associated buildings that have certain characteristics, a second level of analysis, using a more conservative trip generation equation, will be required. These developments have the following characteristics: single general office building or group of adjacent general office buildings totaling 300,000 square feet or more of gross floor area, occupied by a single employer, and not part of an activity center such as a major office park or cluster of mixed use buildings. These sites have a potential for higher than average trip generation rates and, thus, the applicant must analyze the critical intersections using both the average and 85th percentile trip rate. The Planning Board shall consider the particular situation and the results of the analysis in determining if any additional facility improvements are needed based on the two analyses. Traffic mitigation or other measures to control the site activity levels will be considered when reviewing whether or not the second level trip rate is appropriate.~~

C. Peak Hour

The traffic study shall be based on the highest one-hour period that occurs during the typical weekday morning (7:00-9:00 a.m.) and/or evening (4:00-6:00 p.m.) peak periods, i.e., the street peak, or the time period established and agreed to in Section II.A. This one-hour period shall be determined from the highest sum of the existing traffic entering all approaches to ~~an~~ each intersection during four consecutive 15-minute intervals.

D. Trip Distribution

The directional distribution of the office and residential generated trips for both background and site traffic shall be provided to the applicant by Transportation Planning staff, per the latest edition of the *"Trip Distribution and Traffic Assignment Guidelines"* (see Appendix E). The distribution of trips entering and leaving the proposed development and all background development via all access points must be justified by the relative locations of other traffic generators (i.e., employment centers, commercial centers, regional or area shopping centers, transportation terminals, or the trip table information provided by Transportation Planning staff). ~~These same factors or other factors provided by the Transportation staff shall be applied to the development under study as well as the other nearby development plans in their analyses.~~ For land uses, i.e., retail, not covered by the guidelines, distribution should be developed in consultation with Transportation Planning staff.

E. Directional Split

~~This~~ The directional split is the percentage of the generated trips entering or leaving the site during the peak hour. Refer to Table 5 to obtain the directional split for general office, retail, residential, child day-care, auto filling station with convenience store, and fast food uses. See Appendix C for directional split assumptions for the Bethesda, Friendship Heights, and Silver Spring CBDs. For all other uses, refer to "directional distribution" as noted in the latest edition of ITE's *Trip Generation* Report. If data is not available, ~~the~~ Transportation Planning staff, along with the applicant, will determine an appropriate in/out directional split.

Table 5: In/Out Directional Split

	AM		PM	
Land Use	Enter	Exit	Enter	Exit
General Office	87%	13%	17%	83%
Retail	52%	48%	52%	48%
Residential:				
Single-Family	25%	75%	64%	36%
Townhouse	17%	83%	67%	33%
Garden Apartments	20%	80%	66%	34%
High-Rise	25%	75%	61%	39%
Fast Food	53%	47%	53%	47%
Child Day-Care	54%	46%	47%	53%
Auto Filling Station w/ Convenience Store	52%	48%	51%	49%

Other Uses: See latest edition of ITE's *Trip Generation* Report

F. Trip Assignment

The distribution factors furnished by Transportation Planning staff shall be applied to the generated trips and the resulting traffic volumes assigned to the road network providing access to the proposed development. These trips will be added to existing traffic as well as the trips generated by background development to determine the impact on the adequacy of the transportation facilities. The assignment is to be extended to the nearest major intersection, or intersections, as determined by ~~the~~ Transportation Planning staff. ~~and can include an evaluation of the impact of generated traffic on existing links.~~

It should be noted that this is an estimate of the impact of future traffic on the nearby road network. Trip distribution and assignment is less accurate the further one goes from the trip origin/destination.

Once an intersection under assignment conditions of existing plus background traffic or existing plus background plus site-generated traffic exceeds a CLV of 2,000, diversions to alternate routes may be considered if there are feasible alternatives, as discussed in paragraph IV.C. Unavoidable Congestion. Appropriate balancing of assignments to reflect impacts of the site on both the primary and alternate routes is necessary. Impacts on the primary and alternate intersections must be identified and mitigated if appropriate in accordance with the congestion standards of these guidelines. Such situations should be discussed with Transportation Planning, SHA and DPWT staff and resolved on a case-by-case basis before presentation to the Planning Board.

G. Critical Lane Volume Analysis

At the intersections identified by Transportation Planning staff, the existing, background, and site-generated traffic is to be related to the adequacy of the intersection by using the critical lane volume method. (See Section J.) The methodology and assumptions shall be updated to maintain consistency with ~~the~~ revisions to the Highway Capacity Manual published by the Transportation Research Board of the National Research Council. ~~Link volume analysis shall also be related to Highway Capacity Manual standards.~~ The analysis should be carried out for the peak hour of both the weekday morning ~~peak hour~~ and ~~the~~ evening peak ~~hour~~ periods and should use traffic data for non-holiday weekdays. ~~In cases where there are unusual intersection characteristics, flow patterns or signal timings, alternate capacity and level of service analysis techniques may be used to supplement the results of the CLV method.~~

H. Traffic Data

1. Current existing ~~T~~traffic volume data is available from either Transportation Planning's traffic count database ~~the Maryland Department of Transportation~~ SHA or ~~the~~ DPWT.

2. ~~Data should be adjusted to the current year or n~~New traffic counts should be made by the applicant if, in the opinion of Transportation Planning staff, traffic volumes have increased due to some change in the traffic pattern, such as the completion of a development project after the count was made. ~~Counts older than six months must be made current by adding estimated new residential and commercial construction completed since the date the count was made.~~

3. If turning movement data is older than one year when the traffic ~~impact~~ study is submitted or, if there are locations for which data are non-existent, data must be acquired by the applicant using his/her own resources. This is in accordance with the ordinance and part of the applicant's submission of sufficient information and data, consistent with the decisions reached by the Development Review Committee and Transportation Planning staff.

4. Intersection traffic counts conducted by the applicant must be manual turning movement counts covering the typical weekday peak periods, i.e., 7:00-9:00 a.m. and 4:00-6:00 p.m., or the time period established and agreed to in Section II.A. The data must be collected in 15-minute intervals so as to allow selection of the peak hour within the nearest 15 minutes (e.g., 4:00-5:00, 4:15-5:15, 4:30-5:30, 4:45-5:45 or 5:00-6:00) as described in Section VII.C. All weekday peak-period (7:00-9:00 a.m. and 4:00-6:00 p.m.) turning movement data are required to be included with and submitted as part of the applicant's traffic study. All intersection traffic counts must be submitted in a digital format provided by Transportation Planning staff. The subsequent digital database being created by Transportation Planning staff will be available upon request to developers, consultants, and others.

5. For applicants resubmitting all or portions of their development plans for the Planning Board's approval under the expired Expedited Development Approval (EDA) legislation that require LATR, the traffic study must be updated if the traffic counts were collected over ~~a~~ one year from the date of resubmittal ~~ago~~ and must reflect the updated background developments.

I. Adequate Accommodation of Traffic

The ability of a highway system to carry traffic is expressed in terms of level of ~~service~~ congestion at the critical locations (usually an intersection). CLV congestion standards for intersections in each policy area ~~and countywide link capacities~~ standards have been established as shown in Table 1. These congestion standards were derived based on achieving approximately equivalent total transportation levels of service in all areas of the County. Greater vehicular traffic congestion is permitted in policy areas with greater transit accessibility and use.

J. Critical Lane Volume Method

A technical description of the critical lane volume method was introduced in the January 1971 issue of *Traffic Engineering*. The following step-by-step procedure should be sufficiently descriptive to enable the applicant to utilize the method at signalized or unsignalized intersections. For the latter, a two-phase operation should be assumed. The traffic volumes used in the analysis are those approaching the intersection as determined in each step of the traffic study; i.e., existing, existing plus background, and existing plus background plus site.

The following is a step-by-step description of how to determine the congestion level of an intersection with a simple two-phase signal operation.

Step 1. Determine the signal phasing, number of lanes and the total volume on each entering approach to an intersection, and the traffic movement permitted in each lane.

Step 2. Subtract from the total approach volume any right-turn volume that operates continuously throughout the signal cycle, (i.e., a free-flow right-turn by-pass). Also, subtract the left-turn volume if it is provided with an exclusive lane.

Step 3. Determine the maximum volume per lane for each approach by multiplying the volume calculated in Step 2 by the appropriate lane-use factor selected from the following table. (Note: Do not count lanes established for exclusive use such as left turn storage lanes -- the lane use factor for a single exclusive use lane is 1.00).

Number of Approach Lanes	Lane Use Factor*
1	1.00
2	0.53
3	0.37
4	0.30

* Based on local observed data and the ~~1994~~2000 Edition of the Highway Capacity Manual

Step 4. Select the maximum volume per lane in one direction (e.g., northbound) and add it to the opposing (e.g., southbound) left turn volume.

Step 5. Repeat Step 4 by selecting the maximum volume per lane in the opposite direction (e.g., southbound) and the opposing (e.g., northbound) left-turn volume.

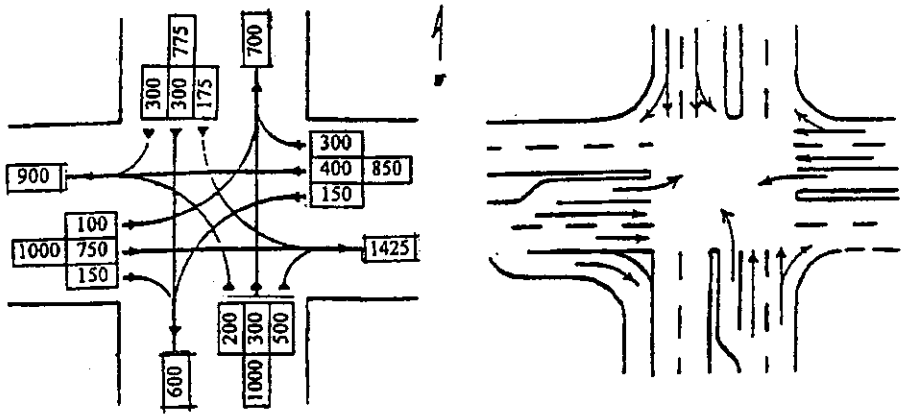
Step 6. The higher total of Step 4 or Step 5 is the critical volume for phase one (e.g., north-south).

Step 7. Repeat Steps 4 through 6 for phase two (e.g., east-west).

Step 8. Sum the critical lane volumes for the two phases to determine the critical lane volume for the intersection. (Note, At some intersections, two opposing flows may move on separate phases. For these cases, each phase becomes a part of the critical lane volume for the intersection. Check with Transportation Planning staff for clarification.)

Step 9. Compare the resultant critical lane volume for the intersection with the congestion standards in Table 1.

Turning Volumes **Intersection Geometrics**



Direction from the	Lane Approach Volume		Critical Lane-Use Factor		Approach Volume		Opposing Lefts		Lane Volume Per Approach
North	775[3]	X	0.53	=	411	+	200	=	611
South	800[4]	X	0.53	=	424	+	175	=	599
Or South	500	X	1.00	=	500	+	175	=	675*
East	700[5]	X	0.53	=	371	+	100	=	471
West	750[6]	x	0.53	=	398	+	150	=	548*

* Intersection Critical Lane Volume = higher sum = 675 + 548 = 1,223

K. Items That Must Be Submitted as a Part of the Traffic Study to Satisfy Local Area Transportation Review

In an effort to standardize the information that is to be included with a traffic study, the following items must be submitted before the preliminary plan application is considered complete.

1. A site or area map showing existing roads that serve the site.

2. The location on the site map of programmed highway improvements, if any, in the County's Capital Improvements Program (CIP) or the State's Consolidated Transportation Program (CTP), that affect traffic at the critical intersection(s) to be studied. ~~provided that they are in the County's most recently published Approved Road Program (ARP).~~

3. Existing <u>weekday</u> morning and evening peak period traffic count summaries for the critical intersections identified by Transportation <u>Planning</u> staff for analysis.

[3] Approach volume sum of thoughts, rights, and lefts in two lanes
[4] For a heavy right turn, evaluate worst of rights in one lane or through and rights in two lanes.
[5] Approach volume sum of throughs and rights in two lanes
[6] Approach volume is through only because of free right and separate left.

4. Nearby approved but unbuilt developments and associated improvements that would affect traffic at the critical intersection(s), with their location shown on the area map. (This information is provided by Transportation Planning staff and included as part of the report.)

5. A table showing the weekday morning and evening peak-hour trips generated by each of the nearby approved but unbuilt developments, including the source of the generation rates/equations for each type of development.

6. Weekday morning and evening peak-hour trips entering and leaving the site, generated by the proposed development.

7. The trip distribution patterns, in percent, for the nearby approved but unbuilt developments during the morning and evening peak hours, with the pattern being shown on an area map.

8. The trip distribution patterns, in percent, for the proposed development during the morning and evening peak hours, with the pattern being shown on an area map.

9. Maps that show separately and in combination:

   a. Existing weekday morning and evening peak-hour traffic volumes using the affected highway system, including turning movements at the critical intersections.

   b. Projected weekday morning and evening peak-hour trips assigned to the affected highway system for all nearby approved developments, included as part of the background.

   c. The traffic volumes derived by adding trips from approved development to existing traffic.

   d. Projected weekday morning and evening peak-hour trips assigned to the affected highway system for the proposed development.

   e. The traffic volumes derived by adding site trips to the sum of existing plus background traffic.

10. Any study performed to help determine how to assign recorded or proposed development trips, such as a license plate study or special turning movement counts.

11. Copies of all critical lane volume analyses, showing calculations for each approach.

12. A listing of all transportation improvements, if any, that the applicant agrees to provide and a scaled drawing of each improvement showing available or needed right-of-way, proposed roadway widening, and area available for sidewalks, bike path, landscaping, as required.

Appendix A

Weekday Peak-Hour Trip-Generation Formulas and Rates for Use in Local Area Transportation Review

Table A-1: General Office Use

Applicable Size	Formula/rate	Comments
Under 25,000 sf GFA	**AM:** T = 1.38 (A) **PM:** T = 2.24 (A)	T = weekday peak-hour vehicle trips A = gross floor area (GFA) of building in 1,000 sf
25,000 sf GFA and over	**AM:** T = 1.70 (A) – 8 **PM:** T = 1.44(A) + 20	
Over 300,000 sf GFA with special characteristics (See Table B-1)	**AM:** T = 1.70(A) + 115 **PM:** T = 1.44(A) + 127	
Within 1,000-foot radius of Metrorail station and outside the Beltway	**AM:** Deduct P = 50% total trips from "T" **PM:** Deduct P = 4 (1000-D)/100 from "T"	P = percentage reduction in vehicle trips (P/100) D = straight line distance to station in feet

Table A-2: Retail Use

Applicable Size	Formula/rate	Comments
All sizes except convenience retail	**AM:** Use 25% of the PM peak-hour trips	T = weekday peak-hour vehicle trips A = gross leasable area (GLA) of building in 1,000 sf Deduct adjustment (P) for no major chain food store: P = .05 + 0.002 (200-A)
Under 50,000 sf GLA	**PM:** T = 12.36(A)	
From 50,000 sf up to 200,000 sf GLA	**PM:** T = 7.43(A) + 247	
Over 200,000 sf GLA	Special analysis required by applicant or use two times applicable ITE rate	
Convenience retail not part of a shopping center or groups of stores	**AM and PM:** Use applicable ITE rate	

Table A-3: Fast Food Restaurants

The trip-generation rates and formulae in the previous version of the *Local Area Transportation Review Guidelines* significantly differed from ITE rates. In fact, weekday peak-hour trip-generation rates of fast food restaurants vary based on their type of menu selection (e.g., hamburgers vs. tacos vs. chicken) and their location relative to traffic volume on the adjacent roadway. Therefore, develop trip-generation rates based on driveway counts from existing similar fast food restaurants at similar locations (e.g., McDonald's Restaurant on major highways) if data are available or can be obtained from previous studies. Otherwise, use ITE trip-generation data.

Table A-4: Residential Use

Applicable Size	Formula/Rate		Comments
Single-Family Detached	**Under 75 units** **AM:** T = 0.95 (U) **PM:** T = 1.11 (U)	75 units or over **AM:** T = 0.62 (U) + 25 **PM:** T = 0.82 (U) + 21	T = weekday peak-hour vehicle trips U = housing units
Townhouses	**Under 100 units** **AM:** T = 0.48 (U) **PM:** T = 0.83 (U)	100 units and over **AM:** T = 0.53 (U) – 5 **PM:** T = 0.48 (U) + 35	
Garden Apartments	**Under 75 units** **AM:** T = 0.44 (U) **PM:** T = 0.48 (U)	75 units and over **AM:** T = 0.40 (U) + 3 **PM:** T = 0.47 (U) + 1	
High-Rise Apartments	**Under 100 units** **AM:** T = 0.40 (U) **PM:** T = 0.46 (U)	100 units and over **AM:** T = 0.29 (U) + 11 **PM:** T = 0.34 (U) + 12	

Table A-5: Private School/Educational Institution (Morning Peak Period)

Applicable Size	Formula	Comments
For schools with kindergarten to eighth grade	**AM:** T = N x 0.92	T = weekday peak-hour vehicle trips N = number of students
For schools with kindergarten to twelfth graders	**AM:** T = N x 0.78	For the AM peak period, a special study is required to determine the trip rate for private schools with over 400 students.
For private schools with classes for predominately tenth to twelfth graders	Use the rates in the Institute of Transportation Engineer's *Trip Generation* Report for high schools (Land Use Code No. 530)	Trip-generation formulas or rates for private schools were developed based on the number of students during only the AM peak period. Since classes for private schools end before the PM peak period, a trip-generation rate during the PM peak period was not developed.

Directional Distribution			Trip Purpose		
Grade	Entering	Exiting	New	Pass-by	Diverted
K-8	54%	46%	53%	15%	32%
K-12	59%	41%	65%	6%	29%

For the PM peak period, the applicant may be required to provide more data on site-generated traffic if it is anticipated that there will be major school-sponsored events during the PM peak period that would generate 50 or more weekday peak-hour trips.

Table A-6: Automobile Filling Station Use

Applicable Size	Formula/rate	Comments
For station with/without car washes, convenience stores, and garages	T = N x (trip rate)	T = weekday peak-hour vehicle trips N = number of pumping stations (or positions)

Trip rates per pumping station:

Station with fuel sales and	AM Peak Period	PM Peak Period	
		Upcounty	Downcounty
1) no other facilities	11.31	14.96	14.96
2) garage	11.00	16.67	11.09
3) convenience store	12.28	21.75	12.32
4) car wash and convenience store	17.33	21.75	15.08

A pumping station is defined as the area at which any one vehicle can stop and pump fuel at any one time. A pumping station could also be referred to as a fueling position in front of a single nozzle dispenser or a multi-produce dispenser.

Note that a convenience store as *an accessory use* to an automobile filing station must have *less than 1,650 square feet of patron area.* Otherwise, such land uses are considered to be a "convenience store with gasoline pumps" with trip-generation rates available in the ITE *Trip Generation Report* as Land Use code 853.

Percentage by trip purpose and directional distribution

Peak Period	Trip Purpose		
	New	Pass-by	Diverted
AM	15%	60%	25%
PM	15%	50%	35%

Down-county locations are considered the urbanized areas: Bethesda/Chevy Chase, Bethesda CBD, Silver Spring/Takoma Park, Silver Spring CBD, Kensington/Wheaton, Wheaton CBD, Friendship Heights CBD, Glenmont, Grosvenor, Shady Grove, Twinbrook, White Flint and North Bethesda Policy Areas. All other locations are upcounty.

Assume 50-50% directional distribution for all locations.

Table A-7: Senior/Elderly Housing

Type of Facility	Formula	Comments
Retirement Community with active seniors and minimal support services	Use ITE Land Use Code 250	T = weekday peak-hour vehicle trips U = detached, attached apartment unit and/or room
Independent-Living Facilities with some support services plus minimal assisted-living and nursing home facilities Number of Units Up to 150* Over 150	Formula AM: T = 0.05 (U) PM: T = 0.04 (U) AM: T = 0.08 (U) PM: T= 0.11 (U)	*Usually large facilities with different levels of support services and may be considered "life cycle" care
Assisted-Living Facilities	AM: T = 0.03 (U) PM: T = 0.06 (U)	
Nursing Homes	As a land use requiring a special exception, site-generated traffic can be determined based on the statement of operations rather than using ITE's trip-generation data. Except for the administrative staff, employees usually arrive before the weekday morning peak period to prepare and serve breakfast. They usually stay through the weekday evening peak period to prepare and serve dinner.	

Table A-8: Mini-Warehouse

Type of Facility	Formula	Comments
On-Site Vehicle Rental No Yes	AM: T = 0.01 (U) PM: T = 0.01 (U) AM: T = 0.015 (U) PM: T = 0.02 (U)	T = weekday peak-hour vehicle trips N = number of storage units Based on ITE Land Use Code 151 supplemented with more current local data

Appendix B

Weekday Peak-Hour Vehicle Trips Generated by Land Use for Use in Local Area Transportation Review

Table B-1: Number of Weekday Peak-Hour Vehicle Trips Generated by a General Office Building

General

Bldg Size (SF of GFA)	Weekday Peak-Hour Trips	
	AM	PM
5,000	7	11
10,000	14	22
15,000	21	34
20,000	28	45
25,000	35	56
30,000	43	63
40,000	60	78
50,000	77	92
60,000	94	106
70,000	111	121
80,000	128	135
90,000	145	150
100,000	162	164
110,000	179	178
120,000	196	193
130,000	213	207
140,000	230	222
150,000	247	236
160,000	264	250
170,000	281	265
180,000	298	279
190,000	315	294
200,000	332	308
220,000	366	337
240,000	400	366
260,000	434	294
280,000	468	423
300,000	502	452
320,000	536	481
340,000	570	510
360,000	604	538
380,000	638	567
400,000	672	596
420,000	706	625
440,000	740	654
460,000	774	682
480,000	808	711
500,000	842	740

Equations Used

AM peak-hour trips = 1.38(GFA/100)
PM peak-hour trips = 2.24(FGA/1000)

25,000 sf and over

AM peak-hour trips = 1.70 (GFA/1000) - 8
PM peak-hour trips = 1.44(GFA/1000) + 20

Special Cases

If a building is within 1,000 feet of a Metrorail station and outside the Beltway, reduce peak-hour trips from chart at left.

Straight Line Distance to Station (in feet)	Percent Reduction in Trips	
	AM	PM
0	50%	40%
50	50%	38%
100	50%	36%
150	50%	34%
200	50%	32%
250	50%	30%
300	50%	28%
350	50%	26%
400	50%	24%
450	50%	22%
500	50%	20%
550	50%	18%
600	50%	16%
650	50%	14%
700	50%	12%
750	50%	10%
800	50%	8%
850	50%	6%
900	50%	4%
950	50%	2%
1,000	50%	0%

If a building is over 300,000 sf with a single employer and NOT part of an activity center with different land uses

Building Size (SF of GFA)	Peak-Hour Trips	
	AM	PM
300,001	625	559
320,000	659	588
340,000	693	617
360,000	727	645
380,000	761	674
400,000	795	703
420,000	829	732
440,000	863	761
460,000	897	789
480,000	931	818
500,000	965	847

Equations Used

AM peak-hour trips = 1.70(GFA/1000) + 115
PM peak-hour trips = 1.44(GFA/1000) + 127

Please note: Trip generation rates are calculated using the size of individual buildings, not the combined size of a group.

Table B-2: Number of Weekday Peak-Hour Vehicle Trips Generated by a General Retail Land Use

With Major Food Chain Land Use

Bldg Size (SF of GFA)	Peak-Hour Trips AM	PM
50,000	155	619
55,000	164	656
60,000	173	693
65,000	182	730
70,000	192	767
75,000	201	804
80,000	210	841
85,000	220	879
90,000	229	916
95,000	238	953
100,000	248	990
105,000	257	1027
110,000	266	1064
115,000	275	1101
120,000	285	1139
125,000	294	1176
130,000	303	1213
135,000	313	1250
140,000	322	1287
145,000	331	1324
150,000	340	1362
155,000	350	1399
160,000	359	1436
165,000	368	1473
170,000	378	1510
175,000	387	1547
180,000	396	1584
185,000	405	1622
190,000	415	1659
195,000	424	1696
200,000	433	1733

Equations Used

50,000 to 200,000 sf

AM peak-hour trips = 0.25 [7.43 (GFA/2000) + 247]
PM peak-hour trips = 7.43 (GFA/1000) + 247

Please note:

Under 50,000 sf

No equations, since major food chain store is typically at least 50,000 sf

Adjustment Factor for No Major Food Chain Store

P = 0.05 + 0.002 [200 – (GFA/1000)]

Without Major Food Chain Store

Bldg Size (SF of GFA)	Peak-Hour Trips AM	PM
5,000	9	35
10,000	18	70
15,000	27	108
20,000	36	146
25,000	46	185
30,000	57	226
35,000	67	268
40,000	78	311
45,000	89	356
50,000	101	402
55,000	108	433
60,000	116	464
65,000	124	496
70,000	132	529
75,000	141	563
80,000	149	597
85,000	158	633
90,000	167	668
95,000	176	705
100,000	186	743
105,000	195	781
110,000	205	820
115,000	215	859
120,000	225	899
125,000	235	941
130,000	246	982
135,000	256	1025
140,000	267	1068
145,000	278	1112
150,000	289	1157
155,000	301	1203
160,000	312	1249
165,000	324	1296
170,000	336	1344
175,000	348	1393
180,000	360	1442
185,000	373	1492
190,000	386	1543
195,000	299	1594
200,000	412	1646

Equations Used

Under 50,000 sf

AM peak-hour trips = 0.25 [12.36(GFA/100)](1-P)
PM peak-hour trips = [12.36 (GFA/1000)](1-P)

50,000 to 200,000 sf

AM peak-hour trips = 0.25 [7.43(GFA/1000) + 247](1-P)
PM peak-hour trips = [7.43(GFA/1000) + 247](1-P)

Table B-3: Number of Weekday Peak-Hour Trips Generated by Residential Units

No. of Units	Single-Family		Townhouse		Garden Apartment		High-Rise Apartments	
	AM	PM	AM	PM	AM	PM	AM	PM
1	1	1	0	1	0	0	0	0
5	5	6	2	4	2	2	2	2
10	10	11	5	8	4	5	4	5
15	14	17	7	12	7	7	6	7
20	19	22	10	17	9	10	8	9
25	24	28	12	21	11	12	10	12
30	29	33	14	25	13	14	12	14
35	33	39	17	29	15	17	14	16
40	38	44	19	33	18	19	16	18
45	43	50	22	37	20	22	18	21
50	48	56	24	42	22	24	20	23
55	52	61	26	46	24	26	22	25
60	57	67	29	50	26	29	24	28
65	62	72	31	54	29	31	26	30
70	67	78	34	58	31	34	28	32
75	72	83	36	62	33	36	30	35
80	75	87	38	66	35	39	32	37
85	78	91	41	71	37	41	34	39
90	81	95	43	75	39	43	36	41
95	84	99	46	79	41	46	39	44
100	87	103	48	83	43	46	40	46
110	93	111	53	88	47	53	43	49
120	99	119	59	93	51	57	46	53
130	106	128	64	97	55	62	49	56
140	112	136	69	102	59	67	52	60
150	118	144	75	107	64	72	55	63
160	124	152	80	112	67	76	57	66
170	130	160	85	117	71	81	60	70
180	137	169	90	121	75	86	63	73
190	143	177	96	126	79	90	66	77
200	149	185	101	131	83	95	69	80
210	155	193	106	136	87	100	72	83
220	161	201	112	141	91	104	75	87
230	168	210	117	145	95	109	78	90
240	174	218	122	150	99	114	81	94
250	180	226	128	155	103	119	84	97
275	196	247	141	167	113	130	91	106
300	211	267	154	179	123	142	98	114
325	227	288	167	191	133	154	105	123
350	242	308	181	203	143	166	113	131
375	258	329	194	215	153	177	120	140
400	273	349	207	227	164	189	127	148
425	289	370	220	239	173	201	134	157
450	304	390	234	251	183	213	142	165
475	320	411	247	263	193	224	149	174
500	320	431	260	275	203	236	156	182
550	366	472	287	299	223	260	171	199
600	397	513	313	323	243	283	185	216

Equations Used

SINGLE-FAMILY DATACHED

Under 75 Units

AM peak-hour trips = 0.95(# of units)
PM peak-hour trips = 1.11(# of units)

75 Units and Over

AM peak-hour trips = 0.62(# of units) + 25
PM peak-hour trips = 0.82(# of units) + 21

TOWNHOUSES OR SINGLE-FAMILY ATTACHED

Under 100 Units

AM peak-hour trips = 0.48(# of units)
PM peak-hour trips = 0.83(# of units)

100 Units and Over

AM peak-hour trips = 0.53(# of units) - 5
PM peak-hour trips = 0.48(# of units) + 35

GARDEN APARTMENTS

Under 75 Units

AM peak-hour trips = 0.44(# of units)
PM peak-hour trips = 0.48(# of units)

75 Units and Over

AM peak-hour trips = 0.40(# of units) + 3
PM peak-hour trips = 0.47(# of units) + 1

HIGH-RISE APARTMENTS

Under 100 Units

AM peak-hour trips = 0.40(# of units)
PM peak-hour trips = 0.46(# of units)

100 Units and Over

AM peak-hour trips = 0.29(# of units) + 11
PM peak-hour trips = 0.34(# of units) + 12

Table B-4: Number of Weekday Peak-Hour Vehicle Trips Generated by a Child Day-Care Center

Number of Children Enrolled	AM			PM		
	In	Out	Total	In	Out	Total
10	3	3	6	3	4	7
20	7	6	13	6	7	13
30	10	9	19	9	11	20
40	13	12	25	13	14	27
50	17	14	31	16	17	33
60	20	17	37	18	21	39
70	23	20	43	22	24	46
80	26	23	49	25	28	53
90	30	26	56	28	31	59
100	33	29	62	31	35	66
110	37	31	68	34	39	73
120	40	35	75	37	42	79
130	44	37	81	40	46	86
140	47	40	87	44	49	93
150	50	43	93	47	52	99
160	53	46	99	50	56	106
170	57	48	105	53	59	112
180	60	52	112	56	63	119
190	64	54	118	59	67	126
200	67	57	124	62	70	132
210	70	60	130	65	74	139
220	74	63	137	68	77	145
230	77	66	143	71	81	152
240	80	69	149	74	84	158
250	84	71	155	78	87	165

Based on 2001 survey of nine day-care centers in Montgomery County

For fewer than 15 enrolled children, the impact is considered De minimis (i.e., five or fewer new weekday peak-hour trips)

Directional Distribution			Trip Purpose		
Peak Period	Entering	Exiting	New	Pass-by	Diverted
AM	54%	46%	32%	27%	41%
PM	47%	53%	27%	12%	61%

Table B-5: Number of Weekday Peak-Hour Vehicle Trips Generated by a Private School

Number of Children Enrolled	School Program for Kindergarten to:	
	12^{th} Grade	8^{th} Grade
25	20	23
50	38	46
75	59	69
100	78	92
125	98	115
150	117	138
175	137	161
200	156	184
225	176	207
250	195	230
275	215	253
300	234	276
325	254	299
350	273	322
375	293	345
400	312	368

Please note: For over 400 students, a special study is required to determine the trip rate.

Table B-6: Number of Weekday Peak-Hour Vehicle Trips Generated by an Automobile Filling Station

No. of Pumping Stations	With Fuel Only		With Fuel and Garage Only				With Fuel and Convenience Store Only				With Fuel, Car Washes, and Convenience Store			
	All Areas		Upcounty		Downcounty		Upcounty		Downcounty		Upcounty		Downcounty	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	11	15	11	17	11	11	12	22	12	12	17	22	17	15
2	23	30	22	33	22	22	25	44	25	25	35	44	35	30
3	34	45	33	50	33	33	37	65	37	37	52	65	52	45
4	45	60	44	67	44	44	49	87	49	49	69	87	69	60
5	57	75	55	83	55	55	61	109	61	62	87	109	87	75
6	68	90	66	100	66	67	74	131	74	74	104	131	104	90
7	79	105	77	117	77	78	86	152	86	86	121	152	121	106
8	90	120	88	133	88	89	98	174	98	99	139	174	139	121
9	102	135	99	150	99	100	111	196	111	111	156	196	156	136
10	113	150	110	167	110	111	123	218	123	123	173	218	173	151
11	124	165	121	183	121	122	135	239	135	136	191	239	191	166
12	136	180	132	200	132	133	147	261	147	148	208	261	208	181
13	147	194	143	217	143	144	160	283	160	160	225	283	225	196
14	158	209	154	233	154	155	172	305	172	172	243	305	243	211
15	170	224	165	250	165	166	184	326	184	185	260	326	260	226
16	181	239	176	267	176	177	196	348	196	197	277	348	277	241
17	192	254	187	283	187	189	209	370	209	209	295	370	295	256
18	204	269	198	300	198	200	221	392	221	222	312	392	312	271
19	215	284	209	317	209	211	233	413	233	234	329	413	329	287
20	226	299	220	333	220	222	246	435	246	246	347	435	347	302
Rate per Pumping Station	11.31	14.96	11.00	16.67	11.00	11.09	12.28	21.75	12.28	12.32	17.33	21.75	17.33	15.08

Appendix C

Weekday Peak-Hour Trip-Generation Rates and Directional Splits for the Bethesda, Friendship Heights, and Silver Spring CBDs

Table C-1: Weekday Morning and Evening Peak-Hour Trip Generation Rates for the Bethesda and Friendship Heights CBDs

Land Use Per Trip Rate Unit	Rate AM Peak-Hour Vehicle Trips per Unit of Development	% In	% Out	Rate PM Peak-Hour Vehicle Trips per Unit of Development	% In	% Out
Office (1,000 sf)	1.50	85	15	1.50	25	75
Retail (1,000 sf)	0.65	50	50	2.60	50	50
Grocery Store (1,000 sf)	1.22	70	30	6.20	50	50
Residential High Rise (dwelling unit)	0.30	20	80	0.30	67	33
Residential Garden Apt. (dwelling unit)	0.45	20	80	0.45	67	33
Residential Townhouse (dwelling unit)	0.45	20	80	0.45	67	33
Residential Single-Family (dwelling unit)	0.80	25	75	0.80	67	33
Hotel (room)	0.22	60	40	0.22	55	45
Miscellaneous Service (1,000 sf)	1.30	50	50	1.30	50	50
Hospital (employee)	0.33	70	30	0.29	30	70
Industrial (1,000 sf)	1.10	85	15	1.10	15	85

Table C-2: Weekday Evening Peak-Hour Trip-Generation Rates for the Silver Spring CBD

Land Use	Rate	% In	% Out
Office (existing vacant/1,000 sf)	1.60	15	85
Office (pending + future/1,000 sf)	1.40	15	85
Industrial (1,000 sf)	1.00	15	85
Retail (1,000 sf)	2.00	50	50
Residential (high rise)	0.40	70	30
Residential (townhouse)	0.45	67	33
Hotel (room)	0.20	55	45

Appendix D

The Annual Growth Policy's Transportation Facilities Adequacy Test

The Annual Growth Policy's Transportation Facilities Adequacy Test

The Annual Growth Policy's transportation test is administered on a policy area and a local area basis. For Policy Area Transportation Review, the County is divided into 25 policy areas plus the cities of Rockville and Gaithersburg. For each policy area, the AGP calculates the amount of development (expressed in jobs and housing units) that can be supported by the existing and programmed (first five years of the CIP) transportation network. This maximum amount of development that can be approved by the Planning Board during the following year is called the policy area's staging ceiling, and is adopted each July by the County Council.

If the Planning Board can approve additional development in an area (that is, when the staging ceiling has not yet been reached), the area is said to have positive net remaining capacity. If more development has been approved than can be supported by a policy area's transportation network (that is, the staging ceiling has been exceeded), the area is said to have negative net remaining capacity, and is in moratorium for new subdivision approvals. Previously approved developments can still move forward.

The pipeline of approved developments (i.e., background development) is the list of development projects that have passed their AGP tests, but have not yet been constructed. There are currently more than 100,000 jobs and 30,000 housing units in the pipeline. Once a project is approved, it retains the "rights" to that capacity for between 5 and 12 years, thus potentially putting the policy area in a moratorium and preventing projects from being approved.

New approvals can occur in policy areas that are otherwise in moratorium through several special procedures. These are:

1. *The Special Ceiling Allocation for Affordable Housing:* permits a limited amount of housing to be approved if the project contains a significant affordable housing component.

2. *De Minimis Development:* projects generating five or fewer weekday peak-hour trips can be approved in moratorium areas.

3. *Developer Participation:* permits projects to be approved if the developer provides the needed transportation facilities or otherwise mitigates the trips from his project.

4. *Development Districts:* landowners may form development districts to finance the transportation improvements needed to pass AGP transportation tests.

5. *Alternative Review Procedure for Limited Residential Development:* allows residential development to meet any transportation test obligations by making a payment, rather than by making the transportation improvements that would otherwise be required. Approvals are limited to 300 units per policy area per fiscal year. Development approved under this procedure must receive all building permits within three years after the plats are recorded. This procedure expired on October 31, 2001, although there are a limited number of subdivisions that remain eligible for the procedure.

6. *Alternative Review Procedure for Metro Station Policy Areas:* allows development in the compact areas atop Metro stations to meet policy area (staging ceiling) and local area (intersection) transportation tests obligations by mitigating 50 percent of their weekday peak-hour trips, making a payment toward transportation improvements, and participating in the area's transportation management organization.

7. *Alternative Review Procedure for Expedited Non-Residential Development Approval ("Pay-and-Go"):* allows non-residential development to meet any transportation test obligations by paying a tax, rather than by making the transportation improvements that would otherwise be required. This option is no longer available for new approvals, although there are a small number of proposed subdivisions that will be eligible to use this procedure until May 1, 2003.

The second transportation test is called Local Area Transportation Review (LATR). Since the mid 1970s, the Planning Board has used LATR to determine if a proposed preliminary plan of subdivision will cause unacceptable local traffic congestion at nearby critical intersections. Local Area Transportation Review is required only for subdivisions that generate 50 or more weekday peak hour trips.

In administering LATR, the Planning Board must not approve a subdivision if it finds that an unacceptable peak hour level of service will result after taking into account existing and programmed roads and transit. If a proposed subdivision causes conditions at a nearby intersection to be worse than the standard, the applicant may make intersection improvements or provide trip reduction measures to bring the intersection back to the standard and gain preliminary plan approval. If the subdivision will affect an intersection or roadway for which congestion is already unacceptable, then the Planning Board may approve the subdivision only if it does not make the situation worse.

Appendix E

Trip Distribution and Traffic Assignment Guidelines

Introduction

This document provides trip distribution guidance to be used in all traffic studies prepared for development sites in Montgomery County. Vehicle trip distribution and trip assignment are described in Sections VII-D and VII-F, respectively, of the Aril 1998 *Local Area Transportation Review Guidelines.* For most development sites, the process described in the LATR Guidelines is a combination of trip distribution and traffic assignment.

Definitions

Trip distribution specifies the location where trips, which originate at a development site, are destined to and the origin of trips, which are destined to a development site.

Traffic assignment specifies the individual local area used to access (enter and leave) a development site.

Discussion

The tables in this document provide generalized assumptions for trip distribution for both background development(s) and the development site. For the purpose of reviewing trip distribution, M-NCPPC staff divided the region into 16 geographic areas, called **super-districts.** Eleven of these super-districts are in Montgomery County, as shown in Figure E-1. The remaining five super-districts represent neighboring jurisdictions.

The trip distribution assumptions are contained in Tables E-1 through E-11 for developments within each of the eleven super-districts in Montgomery County. For each super-district, the assumed distribution of trips for general office development and for residential development is listed. For instance, 18.1% of trips generated by a general office development in Germantown (see Table E-9) would be expected to travel to or from Frederick County. However, only 2.0% of trips generated by a residential development in Germantown would be expected to travel to or from Frederick County.

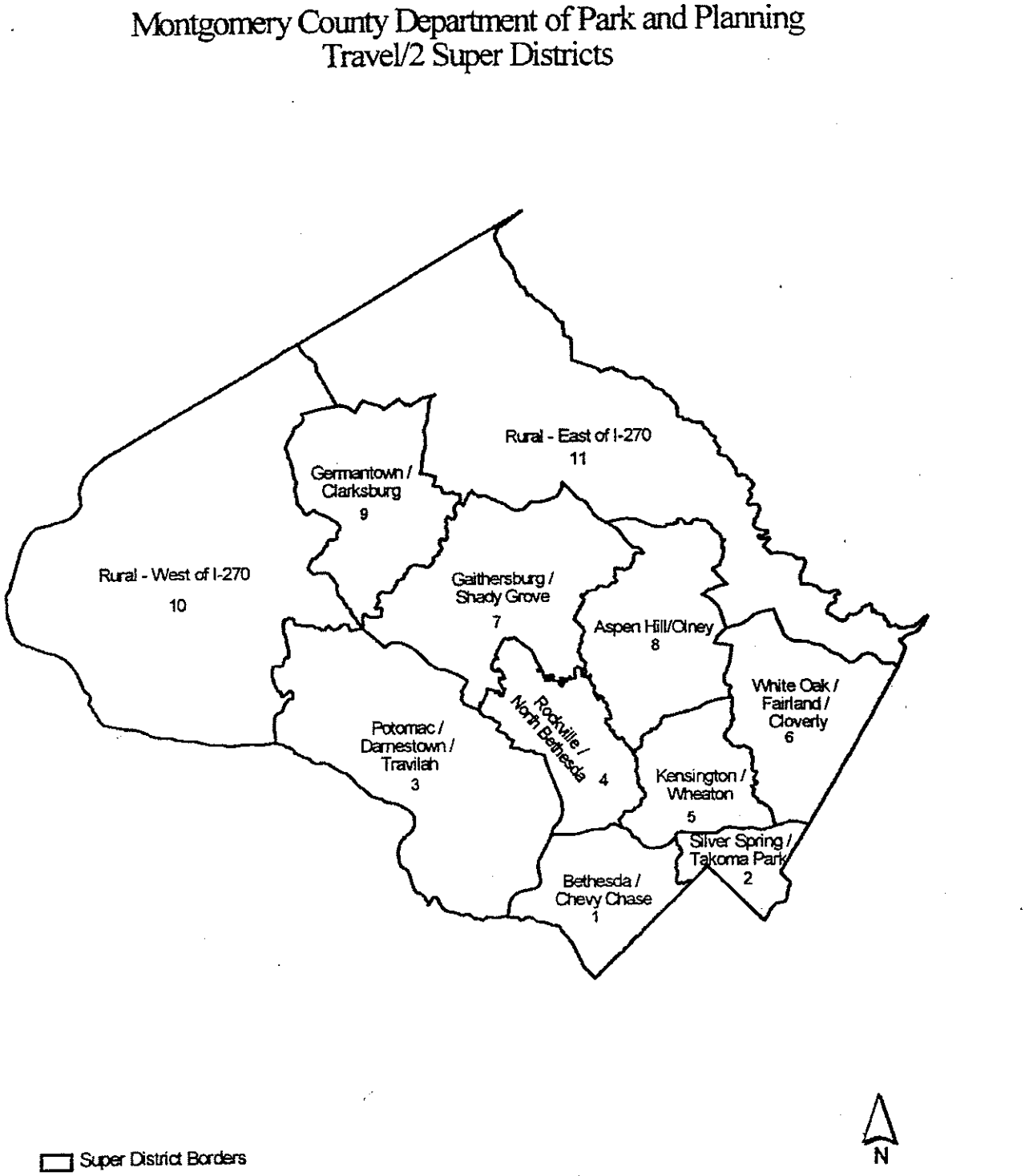
The trip distribution assumptions in these tables are based on 1990 census journey-to-work information, updated to reflect regional housing and employment totals as of 1998. The distribution for residential development in each super-district is based on the reported workplace locations for 1990 census respondents who lived in that super-district. Similarly, the distribution for office development for each super-district is based on the distribution of all census households nationwide that reported a workplace in that super-district. Trip distribution for other land uses will be decided based on consultation with staff and the applicant prior to submission of the traffic study.

The application of the trip distribution information in Tables E-1 through E-11 is straightforward in cases where a traffic study has a limited number of alternate routes. In other cases, judgment is required to convert the trip distribution information into traffic assignment information useful for conducting the Local Area Transportation Review.

Figure E-2 provides an example of how the trip distribution information can be converted to traffic assignment information for a hypothetical case in the Rockville/North Bethesda super-district with both office and residential components.

The leftmost column of data showing the trip distribution by super-district is found in Table E-4 (used for development in the Rockville/North Bethesda super-district). The information located in the center of the table (inside the boxes) describes the assumed route, or assignment, taken for trips between the site and each super-district. *The data inside the boxes must be developed using judgment and confirmed by M-NCPPC staff.* The rightmost portion of the table multiplies the percent of trips distributed to each super-district by the percent of trips from that super-district assigned to each route to calculate the percent of total site-generated trips using each combination of distribution and assignment. The assignment data is then summed to develop an aggregate trip distribution and assignment. The assignment data is then summed to develop an aggregate trip assignment for the trips generated by the office and residential components of the site, respectively.

Figure E-1: Super Districts in Montgomery County



F **Trip Distribution - Assignment Matrix**

Hypothetical Case in North Bethesda with both Office and Residential Components

Part 1. Office Component

	Trip distribution by super district	Trip assignment for origin by super-district: Montrose west	MD 355 north	Randolph east	MD 355 south	MD 187 south	TOTAL	Trip assignment for development case: Montrose west	MD 355 north	Randolph east	MD 355 south	MD 187 south	TOTAL
Bethesda	3.5%				50%	50%	100%	0.0%	0.0%	0.0%	1.8%	1.8%	3.5%
Silver Spring	2.2%				100%		100%	0.0%	0.0%	0.0%	2.2%	0.0%	2.2%
Potomac	8.0%	80%				20%	100%	6.4%	0.0%	0.0%	0.0%	1.6%	8.0%
Rockville	12.8%	25%	75%				100%	3.2%	9.6%	0.0%	0.0%	0.0%	12.8%
Kensington	7.2%			80%	20%		100%	0.0%	0.0%	5.8%	1.4%	0.0%	7.2%
Fairland	4.1%			80%	20%		100%	0.0%	0.0%	3.3%	0.8%	0.0%	4.1%
Gaithersburg	14.4%	75%	25%				100%	10.8%	3.6%	0.0%	0.0%	0.0%	14.4%
Olney	6.5%	20%	50%	30%			100%	1.7%	4.3%	2.6%	0.0%	0.0%	6.5%
Germantown	6.5%	90%	10%				100%	5.9%	0.7%	0.0%	0.0%	0.0%	6.5%
Agricultural Area (West)	0.9%	100%					100%	0.9%	0.0%	0.0%	0.0%	0.0%	0.9%
Agricultural Area (East)	4.2%	40%	40%	20%			100%	1.7%	1.7%	0.8%	0.0%	0.0%	4.2%
Washington, DC	3.6%	70%			30%		100%	2.5%	0.0%	0.0%	1.1%	0.0%	3.6%
Prince George's County	8.8%				100%		100%	0.0%	0.0%	0.0%	8.8%	0.0%	8.8%
Virginia	7.8%	80%		10%		10%	100%	6.2%	0.0%	0.8%	0.0%	0.8%	7.8%
Frederick County	4.6%	100%					100%	4.6%	0.0%	0.0%	0.0%	0.0%	4.6%
Howard County	2.9%		10%	10%	80%		100%	0.0%	0.3%	0.3%	2.3%	0.0%	2.9%
TOTAL	**100.0%**							**43.9%**	**20.1%**	**13.5%**	**16.4%**	**4.1%**	**100.0%**
							USE ==>	**44%**	**20%**	**14%**	**18%**	**4%**	**100%**

Part 2. Residential Component

	Trip distribution by super-district	Trip assignment for origin by super-district: Montrose west	MD 355 north	Randolph east	MD 355 south	MD 187 south	TOTAL	Trip assignment for development case: Montrose west	MD 355 north	Randolph east	MD 355 south	MD 187 south	TOTAL
Bethesda	15.6%				50%	50%	100%	0.0%	0.0%	0.0%	7.8%	7.8%	15.6%
Silver Spring	2.4%				100%		100%	0.0%	0.0%	0.0%	2.4%	0.0%	2.4%
Potomac	3.3%	80%				20%	100%	2.6%	0.0%	0.0%	0.0%	0.7%	3.3%
Rockville	31.0%	25%	75%				100%	7.8%	23.3%	0.0%	0.0%	0.0%	31.0%
Kensington	2.6%			80%	20%		100%	0.0%	0.0%	2.1%	0.5%	0.0%	2.6%
Fairland	0.7%			80%	20%		100%	0.0%	0.0%	0.6%	0.1%	0.0%	0.7%
Gaithersburg	10.6%	75%	25%				100%	8.0%	2.7%	0.0%	0.0%	0.0%	10.6%
Olney	1.7%	20%	50%	30%			100%	0.3%	0.9%	0.5%	0.0%	0.0%	1.7%
Germantown	1.0%	90%	10%				100%	0.9%	0.1%	0.0%	0.0%	0.0%	1.0%
Agricultural Area (West)	0.0%	100%					100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Agricultural Area (East)	0.2%	40%	40%	20%			100%	0.1%	0.1%	0.0%	0.0%	0.0%	0.2%
Washington, DC	13.9%	70%			30%		100%	9.7%	0.0%	0.0%	4.2%	0.0%	13.9%
Prince George's County	6.1%				100%		100%	0.0%	0.0%	0.0%	6.1%	0.0%	6.1%
Virginia	9.7%	80%		10%		10%	100%	7.8%	0.0%	1.0%	0.0%	1.0%	9.7%
Frederick County	0.5%	100%					100%	0.5%	0.0%	0.0%	0.0%	0.0%	0.5%
Howard County	0.7%		10%	10%	80%		100%	0.0%	0.1%	0.1%	0.6%	0.0%	0.7%
TOTAL	**100.0%**							**37.7%**	**27.0%**	**4.2%**	**21.7%**	**9.4%**	**100.0%**
							USE ==>	**38%**	**27%**	**4%**	**22%**	**9%**	**100%**

Figure E-2: Trip Distribution Converted to Traffic Assignment

Table E-1: Trip Distribution Report in Super District 1: Bethesda/Chevy Chase

Auto-Driver Trip Distribution for Development in Super District 1: Bethesda/Chevy Chase

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	11.7%	22.8%
2. Silver Spring/Takoma Park	3.8%	2.1%
3. Potomac/Darnestown/Travilah	7.3%	1.8%
4. Rockville/North Bethesda	9.4%	9.8%
5. Kensington/Wheaton	8.7%	1.6%
6. White Oak/Fairland/Cloverly	4.3%	0.7%
7. Gaithersburg/Shady Grove	7.5%	4.0%
8. Aspen Hill/Olney	5.1%	0.4%
9. Germantown/Clarksburg	3.3%	0.2%
10. Rural: West of I-270	0.6%	0.0%
11. Rural: East of I-270	2.0%	0.15%
12. Washington, DC	7.4%	39.5%
13. Prince George's County	12.4%	4.6%
14. Virginia	12.2%	11.7%
15. Frederick County	2.1%	0.2%
16. Howard County	2.2%	0.5%

Table E-2: Trip Distribution Report in Super District 2: Silver Sprint/Takoma Park

Auto-Driver Trip Distribution for Development in Super District 2: Silver Spring/Takoma Park

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	2.2%	9.1%
2. Silver Spring/Takoma Park	11.5%	13.3%
3. Potomac/Darnestown/Travilah	2.2%	0.9%
4. Rockville/North Bethesda	3.0%	7.7%
5. Kensington/Wheaton	10.0%	4.6%
6. White Oak/Fairland/Cloverly	11.9%	2.7%
7. Gaithersburg/Shady Grove	3.9%	4.2%
8. Aspen Hill/Olney	6.3%	0.8%
9. Germantown/Clarksburg	1.3%	0.6%
10. Rural: West of I-270	0.1%	0.6%
11. Rural: East of I-270	2.8%	0.2%
12. Washington, DC	7.2%	32.5%
13. Prince George's County	24.5%	12.8%
14. Virginia	6.4%	8.9%
15. Frederick County	1.1%	0.2%
16. Howard County	5.6%	1.4%

Table E-3: Trip Distribution Report in Super District 3: Potomac/Darnestown/Travilah

Auto-Driver Trip Distribution for Development in Super District 3: Potomac/Darnestown/Travilah

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	5.7%	13.05
2. Silver Spring/Takoma Park	2.4%	1.9%
3. Potomac/Darnestown/Travilah	21.0%	6.2%
4. Rockville/North Bethesda	12.1%	20.5%
5. Kensington/Wheaton	6.8%	1.4%
6. White Oak/Fairland/Cloverly	2.3%	0.7%
7. Gaithersburg/Shady Grove	11.1%	13.3%
8. Aspen Hill/Olney	5.1%	0.6%
9. Germantown/Clarksburg	4.5%	1.7%
10. Rural: West of I-270	1.1%	0.1%
11. Rural: East of I-270	2.2%	0.2%
12. Washington, DC	3.8%	22.1%
13. Prince George's County	7.2%	5.1%
14. Virginia	10.4%	12.4%
15. Frederick County	2.8%	0.4%
16. Howard County	1.5%	0.4%

Table E-4: Trip Distribution Report in Super District 4: Rockville/North Bethesda

Auto-Driver Trip Distribution for Development in Super District 4: Rockville/North Bethesda

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	3.5%	15.6%
2. Silver Spring/Takoma Park	2.2%	2.4%
3. Potomac/Darnestown/Travilah	8.0%	3.3%
4. Rockville/North Bethesda	12.8%	31.0%
5. Kensington/Wheaton	7.2%	2.6%
6. White Oak/Fairland/Cloverly	4.1%	0.7%
7. Gaithersburg/Shady Grove	14.4%	10.6%
8. Aspen Hill/Olney	8.5%	1.7%
9. Germantown/Clarksburg	6.5%	1.0%
10. Rural: West of I-270	0.9%	0.0%
11. Rural: East of I-270	4.2%	0.2%
12. Washington, DC	3.6%	13.9%
13. Prince George's County	8.8%	6.1%
14. Virginia	7.8%	9.7%
15. Frederick County	4.6%	0.5%
16. Howard County	2.9%	0.7%

Table E-5: Trip Distribution Report in Super District 5: Kensington/Wheaton

Auto-Driver Trip Distribution for Development in Super District 5: Kensington/Wheaton

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	2.7%	12.3%
2. Silver Spring/Takoma Park	6.2%	6.9%
3. Potomac/Darnestown/Travilah	2.6%	1.6%
4. Rockville/North Bethesda	5.1%	14.8%
5. Kensington/Wheaton	26.0%	11.1%
6. White Oak/Fairland/Cloverly	10.6%	2.2%
7. Gaithersburg/Shady Grove	5.5%	6.0%
8. Aspen Hill/Olney	10.3%	2.0%
9. Germantown/Clarksburg	2.1%	0.6%
10. Rural: West of I-270	0.2%	0.0%
11. Rural: East of I-270	4.3%	0.4%
12. Washington, DC	3.7%	22.6%
13. Prince George's County	11.9%	9.5%
14. Virginia	4.1%	8.2%
15. Frederick County	1.5%	0.2%
16. Howard County	3.2%	1.5%

Table E-6: Trip Distribution Report in Super District 6: White Oak/Fairland/Cloverly

Auto-Driver Trip Distribution for Development in Super District 6: White Oak/Fairland/Cloverly

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	1.3%	6.8%
2. Silver Spring/Takoma Park	4.5%	9.0%
3. Potomac/Darnestown/Travilah	1.7%	0.6%
4. Rockville/North Bethesda	1.7%	9.3%
5. Kensington/Wheaton	6.1%	5.0%
6. White Oak/Fairland/Cloverly	23.5%	9.3%
7. Gaithersburg/Shady Grove	3.2%	3.8%
8. Aspen Hill/Olney	6.2%	1.4%
9. Germantown/Clarksburg	0.4%	0.4%
10. Rural: West of I-270	0.1%	0.0%
11. Rural: East of I-270	2.8%	1.1%
12. Washington, DC	3.7%	23.4%
13. Prince George's County	26.4%	20.1%
14. Virginia	3.4%	7.1%
15. Frederick County	1.6%	0.0%
16. Howard County	13.4%	2.7%

Table E-7: Trip Distribution Report in Super District 7: Gaithersburg/Shady Grove

Auto-Driver Trip Distribution for Development in Super District 7: Gaithersburg/Shady Grove

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	1.8%	8.5%
2. Silver Spring/Takoma Park	1.5%	2.2%
3. Potomac/Darnestown/Travilah	6.6%	2.1%
4. Rockville/North Bethesda	5.6%	23.7%
5. Kensington/Wheaton	3.7%	1.95
6. White Oak/Fairland/Cloverly	2.2%	0.9%
7. Gaithersburg/Shady Grove	25.2%	32.4%
8. Aspen Hill/Olney	5.3%	1.8%
9. Germantown/Clarksburg	10.9%	3.4%
10. Rural: West of I-270	1.6%	0.1%
11. Rural: East of I-270	7.1%	0.8%
12. Washington, DC	2.5%	8.4%
13. Prince George's County	6.7%	4.0%
14. Virginia	4.6%	7.9%
15. Frederick County	12.1%	1.3%
16. Howard County	2.6%	0.6%

Table E-8: Trip Distribution Report in Super District 8: Aspen Hill/Olney

Auto-Driver Trip Distribution for Development in Super District 8: Aspen Hill/Olney

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	1.2%	9.3%
2. Silver Spring/Takoma Park	1.9%	5.5%
3. Potomac/Darnestown/Travilah	1.9%	1.5%
4. Rockville/North Bethesda	6.1%	22.5%
5. Kensington/Wheaton	8.6%	5.7%
6. White Oak/Fairland/Cloverly	5.5%	2.8%
7. Gaithersburg/Shady Grove	9.4%	11.0%
8. Aspen Hill/Olney	26.0%	8.1%
9. Germantown/Clarksburg	3.1%	0.8%
10. Rural: West of I-270	0.1%	0.1%
11. Rural: East of I-270	14.1%	1.3%
12. Washington, DC	2.2%	15.2%
13. Prince George's County	6.4%	7.7%
14. Virginia	3.1%	6.2%
15. Frederick County	4.7%	0.4%
16. Howard County	5.7%	1.9%

Table E-9: Trip Distribution Report in Super District 9: Germantown/Clarksburg

Auto-Driver Trip Distribution for Development in Super District 9: Germantown/Clarksburg

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	0.6%	8.1%
2. Silver Spring/Takoma Park	1.4%	1.6%
5.5%	5.5%	1.8%
4. Rockville/North Bethesda	3.5%	22.9%
5. Kensington/Wheaton	2.3%	1.6%
6. White Oak/Fairland/Cloverly	1.6%	0.2%
7. Gaithersburg/Shady Grove	17.2%	30.2%
8. Aspen Hill/Olney	2.5%	1.3%
9. Germantown/Clarksburg	25.2%	10.5%
10. Rural: West of I-270	2.6%	0.1%
11. Rural: East of I-270	8.0%	1.0%
12. Washington, DC	0.7%	7.0%
13. Prince George's County	5.8%	3.8%
14. Virginia	3.0%	7.4%
15. Frederick County	18.1%	2.0%
16. Howard County	2.1%	0.5%

Table E-10: Trip Distribution Report in Super District 10: Rural – West of I-270

Auto-Driver Trip Distribution for Development in Super District 10: Rural – West of I-270

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	0.8%	9.75
2. Silver Spring/Takoma Park	2.75	0.7%
3. Potomac/Darnestown/Travilah	4.3%	2.9%
4. Rockville/North Bethesda	2.1%	20.1%
5. Kensington/Wheaton	0.8%	1.2%
6. White Oak/Fairland/Cloverly	0.0%	0.4%
7. Gaithersburg/Shady Grove	7.0%	30.0%
8. Aspen Hill/Olney	3.0%	0.4%
9. Germantown/Clarksburg	4.1%	7.1%
10. Rural: West of I-270	47.7%	9.1%
11. Rural: East of I-270	1.7%	0.5%
12. Washington, DC	0.0%	7.4%
13. Prince George's County	2.1%	1.7%
14. Virginia	4.8%	4.5%
15. Frederick County	18.9%	3.8%
16. Howard County	0.0%	0.5%

Table E-11: Trip Distribution Report in Super District 11: Rural – East of I-270

Auto-Driver Trip Distribution for Development in Super District 11: Rural – East of I-270

Trip Distribution to Super District for	Office Development	Residential Development
1. Bethesda/Chevy Chase	0.4%	5.9%
2. Silver Spring/Takoma Park	0.8%	3.9%
3. Potomac/Darnestown/Travilah	1.3%	1.0%
4. Rockville/North Bethesda	1.3%	17.7%
5. Kensington/Wheaton	3.4%	3.8%
6. White Oak/Fairland/Cloverly	8.8%	2.1%
7. Gaithersburg/Shady Grove	9.0%	23.5%
8. Aspen Hill/Olney	8.8%	6.9%
9. Germantown/Clarksburg	4.9%	4.1%
10. Rural: West of I-270	0.4%	0.1%
11. Rural: East of I-270	27.5%	6.7%
12. Washington, DC	0.5%	7.35
13. Prince George's County	9.8%	7.0%
14. Virginia	0.5%	5.2%
15. Frederick County	10.5%	2.0%
16. Howard ~~County~~County	12.1%	2.85