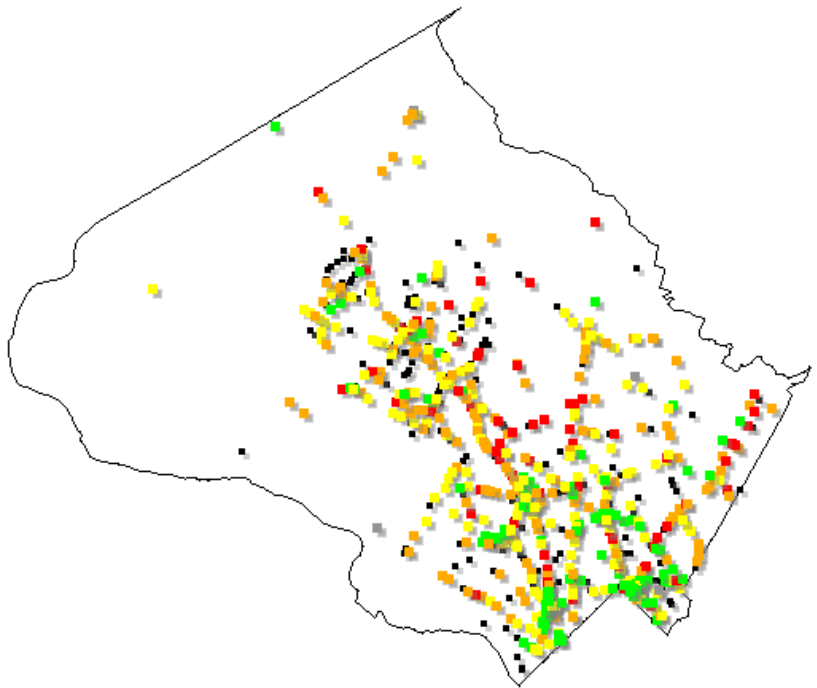


**2008
Draft**

Local Area Transportation Review and Policy Area Mobility Review Guidelines

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



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PARK AND PLANNING COMMISSION**

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I. Introduction

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, or other approvals that require a finding of Adequate Public Facilities (APF) only after finding that public facilities will be adequate to serve the subdivision. This involves forecasting future travel demand from private development and comparing it to the capacity of existing and programmed public transportation facilities.

In accordance with the FY 2007-09 Growth Policy adopted by the County Council on November 13, 2007, subdivision applications are subject to two transportation tests called Local Area Transportation Review (LATR) and Policy Area Mobility Review (PAMR).

B. Policy Areas

The County is divided into separate traffic zones, which are grouped into policy areas (Map 1). The congestion standards for both Local Area Transportation Review and the mitigation requirements for Policy Area Mobility Review are both established by the County Council and adopted in these Guidelines as applied to policy areas.

C. Local Area Transportation Review and Policy Area Mobility Review Standards

The *Local Area Transportation Review and Policy Area Mobility Review Guidelines* adopted by the Planning Board are to be used by applicants in the preparation of reports to the Planning Board to determine the requirement for and the scope of a traffic study or review prepared by an applicant for APF review and mandatory referral cases brought before the Planning Board.

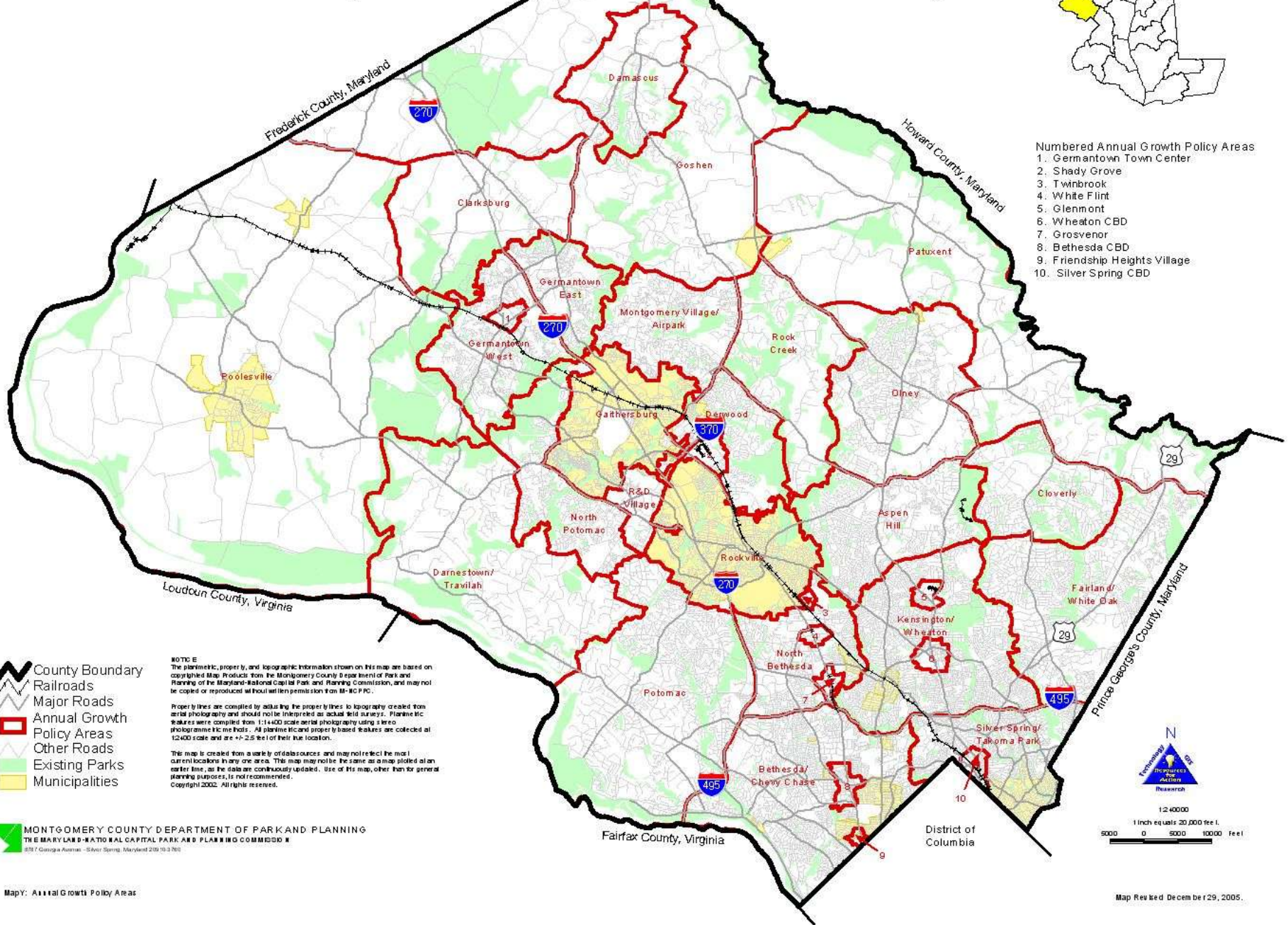
The LATR and PAMR Guidelines are also recognized as the standard to be used by applicants in the preparation of reports to the Board of Appeals and the Hearing Examiner for special exception and zoning cases brought before these bodies.

The LATR and PAMR Guidelines may also apply to building permit review for cases requiring an APF finding without subdivision, though in limited cases (ie. less than 12 months vacancy, no increase in square footage, fewer than 30 peak hour trips) the APF test may be approved administratively by staff.

Montgomery County, Maryland Annual Growth Policy Areas



- Numbered Annual Growth Policy Areas
1. Germantown Town Center
 2. Shady Grove
 3. Twinbrook
 4. White Flint
 5. Glenmont
 6. Wheaton CBD
 7. Grosvenor
 8. Bethesda CBD
 9. Friendship Heights Village
 10. Silver Spring CBD



- County Boundary
- Railroads
- Major Roads
- Annual Growth Policy Areas
- Other Roads
- Existing Parks
- Municipalities

NOTE
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Property lines are compiled by adding the property lines to topography created from aerial photography and should not be interpreted as actual field surveys. Planimetric features were compiled from 1:12,400 scale aerial photography using a stereo photographic technique. All planimetric and property based features are collected at 12,400 scale and are +/- 2.5 feet of their true location.

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



The intent of the *Local Area Transportation Review and Policy Area Mobility Review Guidelines* is to establish criteria for determining if development can or cannot proceed. Pursuant to the adopted Growth Policy, the Planning Board must not approve a subdivision if it finds that an unacceptable weekday peak-hour level of congestion will result after considering existing roads, programmed roads, available or programmed mass transportation and physical improvements or trip mitigation measures to be provided by the applicant. If the subdivision will affect a nearby¹ intersection for which congestion is already unacceptable, then the subdivision may only be approved if it improves the situation to the degree described in these Guidelines.

Table 1: Local Area Transportation Review Intersection Congestion Standards by Policy Area
(As of November 2007)

Congestion (Critical Lane Volume) Standards	Policy Area	
1350	Rural East	Rural West
1400	Damascus	
1425	Clarksburg Germantown West Gaithersburg City	Germantown East Montgomery Village/Airpark
1450	Cloverly North Potomac Olney	Potomac R&D Village
1475	Aspen Hill Fairland/White Oak	Derwood
1500	Rockville City	
1550	North Bethesda	
1600	Bethesda/Chevy Chase Kensington/Wheaton	Silver Spring/Takoma Park Germantown Town Center
1800	Bethesda CBD Friendship Heights CBD Glenmont Grosvenor Shady Grove	Silver Spring CBD Twinbrook Wheaton CBD White Flint

In situations where 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 (SHA), should use these procedures to develop recommendations for trip reduction, specific intersection improvements, or pedestrian, bicycle or transit enhancements that would mitigate the transportation impact of the development in these areas of local congestion so that the Planning Board or another elected or appointed body could consider granting approval. The procedures outlined in the LATR and PAMR Guidelines are intended to provide a near-term “snapshot in

¹ See Section III.B.1, page 12

time“ of estimated future traffic conditions and to present a reasonable estimate of traffic conditions at the time of development, not establish delay-free conditions.

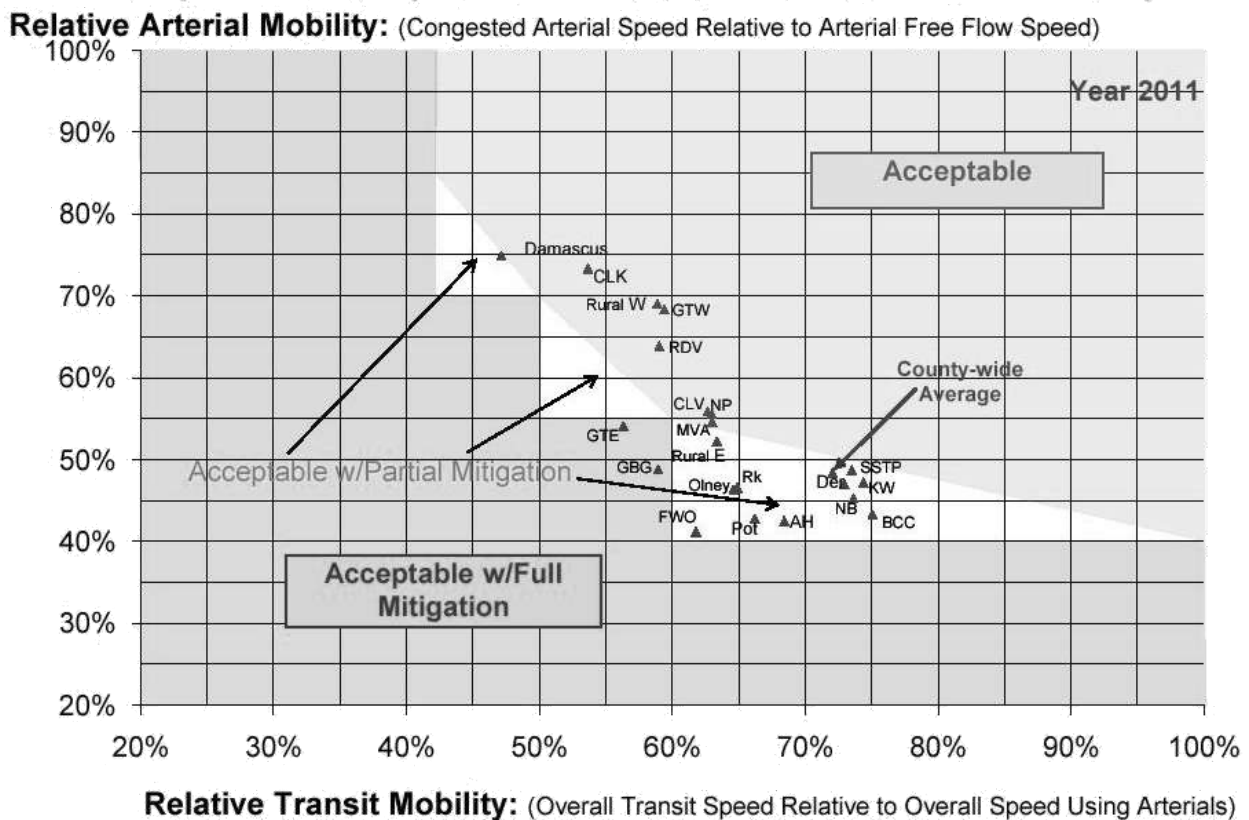
D. Policy Area Mobility Review (PAMR)

Policy Area Mobility Review, or PAMR, is a policy area-wide test of public transportation facilities. The test is separate from Local Area Transportation Review in that it considers average transportation system performance for a geographic area (or policy area). The PAMR test provides a comparative measurement of its two components depending on their relative availability:

- Relative Arterial Mobility, and
- Relative Transit Mobility

Relative Arterial Mobility is a measure of congestion on the County’s arterial roadway network. This concept measures congestion by comparing forecasted congested speeds to free-flow speeds on roadways. Relative Transit Mobility is based on the relative speed by which journey to work trips can be made by transit as opposed to by auto. The Growth Policy establishes adequacy by comparing Relative Arterial Mobility and Relative Transit Mobility and establishing mitigation requirements as shown in Figure 1.

Figure 1. Policy Area Mobility Review for Montgomery County – 2007 Growth Policy



When this annual analysis results in a finding of acceptable with partial mitigation for a policy area for a fiscal year, the Planning Board must not approve any more subdivisions in that policy area in that fiscal year except under certain special circumstances outlined below. For FY2008, the Planning Board must consider certain policy areas to be “acceptable with partial mitigation” for transportation at the policy area level. The full listing of policy areas for which either full or partial mitigation is required in FY 2008 are listed below:

Table 1.2 Trip Mitigation Required by Policy Area

Policy Area	Trip Mitigation Required
Aspen Hill	40%
Bethesda/Chevy Chase*	30%
Damascus	5%
Derwood *	5%
Fairland/White Oak	45%
Gaithersburg City	100%
Germantown East	100%
Kensington/Wheaton*	10%
North Bethesda *	25%
Olney	25%
Potomac	40%
Rural East	5%
Silver Spring/Takoma Park*	15%
Rockville	25%

The trip mitigation also applies to the Metro Station Policy Areas as indicated with an asterisk in the table above and itemized below:

- The Bethesda/Chevy Chase Policy Area includes the Bethesda CBD and Friendship Heights CBD Policy Areas
- The Derwood Policy Area includes the Shady Grove Policy Area
- The Kensington/Wheaton Policy Area includes the Glenmont and Wheaton CBD Policy Areas
- The North Bethesda Policy Area includes the Grosvenor, Twinbrook, and White Flint Policy Areas
- The Silver Spring/Takoma Park Policy Area includes the Silver Spring CBD Policy Area.

An applicant for a preliminary plan of subdivision need not take any mitigating action under Policy Area Mobility Review if the Planning Board finds that the proposed development will generate 3 or fewer peak-hour trips.

E. Relationship between Policy Area Mobility Review and Local Area Transportation Review (LATR)

Application Types

Policy Area Mobility Review and Local Area Transportation Review are separate evaluation processes, but must be examined concurrently as part of a development application submission. This section describes the general relationship between the PAMR and LATR processes. Each applicant must independently satisfy both PAMR and LATR requirements. The requirements must be described in a single document, which may include a combination of traffic statements and traffic studies for PAMR and LATR as described below. There are four general types of development review scenarios:

Type 1. Traffic statement describing exemption from both LATR and PAMR studies.

A development case for which neither an LATR study or a PAMR study is required must submit a traffic statement describing the basis for the exemption. The traffic statement must identify the number of peak hour trips generated by the application during both weekday AM and PM peak periods, and the site's Policy Area and required mitigation percentage. Examples of Type 1 cases are:

- A site generating three or fewer peak hour vehicle trips
- A site generating fewer than 30 vehicle trips located in a Policy Area defined as “acceptable” without mitigation for Policy Area Mobility Review.

Type 2. Traffic study for LATR including statement regarding PAMR study exemption.

A development case for a site which requires an LATR study but only a PAMR statement must include the PAMR statement within the LATR study. An example of a Type 2 case is a site generating 30 or more peak hour vehicle trips located in a Policy Area defined as “acceptable” without mitigation for Policy Area Mobility Review.

Type 3. Traffic study for PAMR including statement regarding LATR study exemption.

A development case for a site which requires a PAMR study but only an LATR statement must include the LATR statement within the PAMR study. An example of a Type 3 case is a site generating between 3 and 30 total peak hour vehicle trips located in a Policy Area defined as “acceptable with partial mitigation” or “acceptable with full mitigation” for Policy Area Mobility Review.

Type 4. Traffic study for both LATR and PAMR.

A development case for a site which requires both an LATR study and a PAMR study must include both studies in the same submittal. An example of a Type 4 case is a site generating more than 30 peak hour vehicle trips located in a Policy Area defined as “acceptable with partial mitigation” or “acceptable with full mitigation” for Policy Area Mobility Review.

Both PAMR and LATR employ similar approaches to the mitigation of unacceptable impacts, including encouragement of non-auto oriented solutions.

Table 1.3 Comparison of PAMR and LATR Approaches to Mitigation of Unacceptable Impacts

Priority	Mitigation Approach	PAMR Mechanism	LATR Mechanism	Single mitigation action addresses	Examples of mitigation actions
1	Peak hour vehicle trip reduction	Traffic mitigation agreement (TMAg)	Traffic mitigation agreement (TMAg)	Both PAMR and LATR impacts	Vehicle trip caps, flex-time/telecommute programs, shuttle services
2	Public transit capacity	Service provision	Not applicable	PAMR impacts only	Purchase of Ride-On bus with 12 years of operation
3	Non-auto facilities	Project implementation	Project implementation	Both PAMR and LATR impacts	Offsite sidewalks and bus shelters
4	Intersection improvements	Not applicable	Project implementation	LATR impacts only	Turn lanes, change of lane use configurations
5	Roadway link improvements	Project implementation	Project implementation only if site-specific LATR impacts are addressed	PAMR impacts, LATR impacts if applicable	Roadway widening

For both PAMR and LATR studies, applicants proposing any mitigating action other than weekday peak period vehicle trip reduction must include a statement describing their consideration of each of the higher-priority mitigation approaches and a rationale for selecting the mitigation approach or approaches proposed. The Planning Board will consider and accept mitigation approaches on a case-by-case basis, using this information as a guide.

II. Criteria for Screening Cases for Local Area Transportation Review

Applicants will be required in 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 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 traffic statement and/or traffic study. If Transportation Planning staff determines, by reviewing the traffic statement, that a traffic study is necessary, but one was not submitted with the filed application, the application will not be considered complete until a traffic study is submitted and found to be complete. Figure 1 is an example of a checklist used by staff for determining the completeness of 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 issues identified or change(s) required.

Staff will determine the acceptability of the conclusions and recommendations of a traffic study in consultation with the applicant, DPWT, SHA, and community representatives as part of the review process. SHA and DPWT have 30 working days to review an approved study and comment on the feasibility of the recommendations, but the applicant will work with staff to obtain comments from SHA and DPWT and transmit them to Transportation Planning staff four weeks prior to a scheduled Planning Board hearing. As long as a traffic study is determined to be complete, staff will consider the date of receipt as the completion date. Once a traffic study has been found to be complete, staff will notify the applicant in writing within 15 working days and, by copy of that letter, inform representatives of nearby community and/or business groups or associations. Traffic studies are available for public review from the application general file. Copies can be made by the public or requested from the applicant and their consultant. A digital copy (in .PDF format) will also be made available, with an electronic link provided in the Commission's DAIC, once that process is active

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 30 or more total (i.e., existing, new, pass-by and diverted) weekday trips during the peak hour of the morning (6:30 a.m. to 9:30 a.m.) and/or evening (4:00 p.m. to 7:00 p.m.) peak period of adjacent roadway traffic.

Figure 2: Check List for Determining the Completeness of Traffic Studies

Transportation Review Checklist	
Development Name:	Plan Stage/Plan No.:
Transportation Review type:	
<ol style="list-style-type: none"> 1. Traffic Statement describing exemption from both LATR and PAMR studies. 2. Traffic Study for LATR including traffic statement regarding PAMR exemption. 3. Traffic Study for PAMR including statement regarding LATR exemption. 4. Traffic Study for Both LATR and PAMR. 	
Traffic study submitted/ Receipt date:	<input type="checkbox"/>
Contact information of Licensed or certified person who prepared it	<input type="checkbox"/>
Are traffic counts acceptable?(ie, within one year of submittal, when school in session, not widely variant from other counts on file)?	<input type="checkbox"/>
Is there a qualitative statement of conditions under which the counts were taken?	<input type="checkbox"/>
Electronic copy of traffic counts received? Receipt date:	<input type="checkbox"/>
Does study follow LATR/PAMR Guidelines, the traffic study scope letter, and generally accepted transportation planning principles?	<input type="checkbox"/>
Does study reflect latest submitted plan and land uses?	<input type="checkbox"/>
Is existing traffic condition presented accurately in the traffic study?	<input type="checkbox"/>
Are pipeline developments adequately represented?	<input type="checkbox"/>
Are background (no-build) traffic conditions appropriate?	<input type="checkbox"/>
Is site trip generation according to LATR/PAMR requirements?	<input type="checkbox"/>
Are assumptions for % new, % diverted, and % pass-by acceptable?	<input type="checkbox"/>
Does site trip distribution match LATR/PAMR guidance?	<input type="checkbox"/>
Is site trip assignment acceptable?	<input type="checkbox"/>
Are Policy Area congestion standards, lane configurations, lane factors, and CLV calculations in the traffic study acceptable?	<input type="checkbox"/>
Are intersection/roadway improvement(s) identified in the traffic study acceptable?	<input type="checkbox"/>
Is the Pedestrian Impact Statement acceptable?	<input type="checkbox"/>
Are necessary Trip Reduction measure(s) identified in the traffic study?	<input type="checkbox"/>
What percentage of trips need to be reduced/mitigated?	<input type="checkbox"/>
Are Trip Reduction measures identified in the traffic study acceptable?	<input type="checkbox"/>
<input type="checkbox"/>	

The following criteria shall be used to determine if a proposed development will generate 30 or more weekday peak-hour trips:

- 1a. For office or residential development, 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.

- 1b. For retail development, pass-by trips are to be included in establishing the 30-vehicle threshold requiring a traffic study, but not used for evaluating CLV measurement, as the trips are already on the network. They shall also be used for designing site access and circulation.
2. All land at one location within the County, including existing development on a parcel that is being modified or expanded 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. Staff shall exercise their professional judgment in consultation with the applicant in determining the appropriate land area to consider. Parcels separated by unbuilt roadways or local subdivision streets remain “land at one location” but parcels separated by business district streets, arterial roadways, major highways, or freeways cease to be “land at one location” even if still in common ownership.

For any subdivision that would generate 30-49 weekday peak-hour vehicle trips, the Planning Board, after receiving a traffic study must require that either all LATR requirements are met or the applicant must make an additional payment equal to 50% of the applicable transportation impact tax before it receives any building permit in the subdivision.

In certain circumstances, Transportation Planning staff may, in consultation with the applicant, require analysis of traffic conditions during a different three-hour weekday peak period; e.g., 6:00 a.m. to 9:00 a.m. or 3:30 p.m. to 6:30 p.m., to reflect the location or trip-generation characteristics of the site, existing conditions or background development as generators of traffic.

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

1. For all land uses in the Silver Spring, Bethesda, or Friendship Heights CBD Policy Areas, use the trip generation rates in Appendix C, Tables C-1 or C-2.
2. For all other land uses in parts of the county not included in 1. above:
 - a. For general office, general retail, residential, fast food restaurant, private school, child day-care center, automobile filling station, senior/elderly housing, or mini-warehouse, use the formulas provided in Appendix A and the tables provided in Appendix B.
 - b. For other land uses, use the latest edition of the *Trip Generation Report* published by the Institute of Transportation Engineers (ITE).

For some 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, Transportation Planning staff must approve them prior to submission of the traffic study.

An applicant shall not avoid the intent of this requirement by submitting piecemeal applications or approval requests for zoning, subdivision, special exception, mandatory referral, or building permits. However, an applicant may submit a preliminary plan of subdivision for approval for less than 30 peak-hour trips at any one time provided the applicant agrees in writing that, upon the filing of future applications, the applicant will comply with the requirements of the LATR Guidelines when the total number of site-generated peak-hour vehicle trips at one location has reached 30 or more. Then, a traffic study will be required to evaluate the impact of the total number of site-generated trips in accordance with the LATR Guidelines.

If use and occupancy permits for at least 75% of the originally approved development were issued more than 12 years before the LATR study scope request, the number of signalized intersections in the study will be based on the increased number of peak hour trips rather than the total number of peak hour trips. In these cases, an LATR study is not required for any expansion that generates 5 or fewer additional peak hour trips.

Transportation Planning staff may elect to waive these criteria if the development results in no net increase in weekday peak-hour trips.

B. Congestion Standards

Critical lane volume (CLV) standards for intersections that were adopted for each policy area in the most-recently adopted Growth Policy are shown in Table 1. Transportation Planning staff maintains an inventory of intersection traffic data based upon traffic counts collected 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 development.

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. In the Potomac Policy Area, only developments that Transportation Planning staff consider will impact any of the following intersections will be subject to Local Area Transportation Review: a) Montrose Road and Seven Locks Road, b) Democracy Boulevard and Seven Locks Road, c) Tuckerman Lane and Seven Locks Road, d) Bradley Boulevard and Seven Locks Road, e) Democracy Boulevard and Westlake Drive, f) Westlake Drive and Westlake Terrace, g) Westlake Drive and Tuckerman Lane, h) River Road and Bradley Boulevard, i) River Road and Piney Meetinghouse Road, and j) River Road and Seven Locks Road. No other intersections are to be studied.
- 2a. The following policy areas have been designated Metro Station Policy Areas in the most-recently adopted Growth Policy: 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 equals a critical lane volume of 1800 (see Table 1) and that development within the area is eligible for the Growth Policy's Alternative Review Procedure for Metro Station Policy Areas (see Appendix D). This procedure allows a developer to meet LATR requirements by 1) agreeing in a contract with the Planning Board and the County Department of Public Works and Transportation to make a payment as designated in the Growth Policy, 2) participating in and supporting a Transportation Management Organization (TMO) if and when one exists 3) mitigating 50% of their total weekday morning and evening peak-hour trips, and 4) conducting a traffic study to identify intersection improvements and/or trip mitigation measures that would have been required. Both residential and non-residential projects are eligible for the procedure.

These guidelines define "50% mitigation of total weekday morning and evening peak-hour trips" for the Alternate Review Procedure as follows. For "non-mitigated trips" the total number of vehicle trips generated based on Countywide average trip generation rates (or national trip generation rates from ITE or comparable sources for land uses not included in the Guideline appendices).

To calculate "mitigated trips" for the Alternate Review Procedure or to meet LATR/PAMR the applicant must explicitly document the conversion between person-trips and vehicle trips to account for transit use, vehicle occupancy, walk/bike use, internal site trip capture, and telecommute options. The estimates should document the effect of home-based work trips separately from all other trips. Special trip rates in the Appendices to this document, such as for office uses within 1,000 feet of Metrorail stations outside the Beltway, or rates for any uses within the Bethesda, Silver Spring, and Friendship Heights CBDs should not be used in either "non-mitigated" or "mitigated" trip calculations. Countywide rates found in Appendix A and B are allowed, otherwise calculation rates and procedures recommended in documents published by the Institute of Transportation Engineers or the Transportation Research Board must be applied and referenced for staff to consider the quantification of any trip reduction proposal.

- 2b. Development in the above-mentioned Metro Station Policy Areas will be reviewed in accordance with Section V of these guidelines. These procedures provide specific criteria to satisfy the general guidelines included in the adopted Growth Policy.
3. Area-specific trip-generation rates have been developed for the Bethesda, 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 intersections of public roadways by the vehicle trips generated by the proposed development. In addition to the consideration of existing traffic associated with 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).

The traffic study for a proposed development under consideration by the Planning Board or other public body; e.g., the Board of Appeals, the cities of Rockville or Gaithersburg, must include in background traffic all developments approved and not yet built and occupied prior to the submission of an application.

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

Transportation Planning staff have 15 working days to develop a study scope after receipt of a written request. Information and data on approved but unbuilt developments, i.e., background development, nearby intersections for study, trip distribution and traffic assignment guidelines, and other required information will be supplied to the applicant by Transportation Planning staff with this scope.

The traffic study should be submitted along with the application or within 15 working days prior to or after the application's submission date. If a traffic study is submitted at the same time as the application, the applicant will be notified concerning the completeness of the traffic study within 15 working days of the Development Review Committee meeting at which the application 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 complete.

For a trip mitigation program or an intersection improvement to be considered for more than one application, the program or improvement must provide enough capacity to allow all the applications participating in the program or improvement to satisfy the conditions of LATR. An

intersection 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 program or improvement must provide sufficient capacity to:

- result in a calculated CLV in the total traffic condition that is less than the congestion standard for that policy area, or
- a number of trips equal to 150% of the CLV impact attributable to the development (for the LATR test). Any type of mitigation listed in this document or acceptable to the Planning Board can be used to achieve this goal.

When development is conditioned upon improvements by more than one application, those improvements must be bonded, under construction, or under contract for construction prior to the issuance of building permits for any new development. 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.

If the Planning Board grants an extension of the APF, for an approved preliminary plan for example, Transportation Planning staff will determine if the traffic study needs to be updated based on the APF validity period, usually three years from the date originally approved by the Planning Board.

In some cases, a Special Exception modification may be submitted where the observed traffic reflects a level of activity greater than that already permitted. In such cases, the petitioner must estimate the reduction in traffic activity that would be caused by reducing the operations to the permitted level, and use those conditions for establishing adequate public facility impacts.

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 development under consideration (see Section II.A. for specific criteria regarding “land at one location”). 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, unless Transportation Planning staff finds that special circumstances warrant a more limited study. For large projects, i.e., greater than 750 peak-hour site trips, the number of intersections shall reflect likely future signalized intersections as determined by staff and the applicant.

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

Weekday Peak-Hour Site Trips	Minimum Number of Signalized Intersections in Each Direction
30 – 250	1
250 – 749	2
750 – 1,249	3
1,250 – 1,749	4
1,750 – 2,249	5
2,250 – 2,749	6
>2,750	7

The term “each direction” in the table above applies to every study intersection. For example, in a hypothetical perfect rectangle grid, the first “ring” would include four intersections. The second “ring” would include not only the next four intersections along the streets serving the site, but also the four intersections among the cross streets encountered in the first “ring”. In this manner, as the number of intersections in each direction grows linearly from one to five, the number of total study area intersections grows at a greater rate.

Transportation Planning staff, in cooperation with the applicant, will use judgment and experience in deciding the significant intersections to be studied within Growth Policy parameters. Interchanges (future) will be afforded special considerations, including ramps/termini being treated as signalized intersections. The urban areas of the county, including Central Business Districts and Metrorail Station policy areas, have more closely-spaced intersections, suggesting that the major intersections be studied. Site access driveways are not included in the first “ring” of intersections.

Transportation Planning staff will consider other factors in reaching a decision regarding the number of intersections to be included in the traffic study, such as:

- geographic boundaries; e.g., parks, interstate routes, railroads
- political boundaries; intersections in jurisdictions for which the Planning Board does not have subdivision authority will not be included in the traffic study
- contiguous land under common ownership
- the type of trip generated; e.g., new, diverted, pass-by
- the functional classification of roadways; e.g., six-lane major highway.
- An unsignalized intersection may be included in the definition of “rings” if the intersecting streets are both master-planned roadways

However, intersections distant enough so that fewer than 5 peak hour vehicle trips from the site will travel through the intersection need not be included in the traffic study, even if they would otherwise be identified as candidate locations. An applicant may develop a trip distribution and assignment pattern prior to the study scoping process and work with Transportation Planning staff to determine which candidate locations would not require full study. This process will be documented in the study scoping correspondence.

- 2a. 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. This geographic area is generally defined by a polygon connecting the intersections furthest from the site. Staging of large background developments beyond the typical time period for a traffic study will be considered on a case-by-case basis.
- 2b. active trip mitigation programs, or physical improvements not completed, that have been required of other developments included in background traffic.
3. the adequacy of 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 and/or state and/or county holidays, on the day before or after federal holidays, during the last two weeks of December and the first week of January, or when weather or other conditions have disrupted normal daily traffic.
4. factors, e.g., the specific trip pattern of development, to be used to compute the trip generation of the proposed development and developments included as background
5. the directional distribution and assignment of trips generated by the proposed development and developments included as background, in accordance with the latest publication of “Trip Distribution and Traffic Assignment Guidelines” by Transportation Planning staff (see Appendix E). Individual background developments that generate less than five peak hour trips (i.e., subdivisions of four or fewer single family detached dwelling units) are not generally included, as tracking those trips is not pragmatic.
6. mode split assumptions, if the traffic study is to include reductions in trips generated using vehicle-based trip factors.
7. transportation projects fully funded for construction within four years in the County’s Capital Improvement Program (CIP), the State’s Consolidated Transportation Program (CTP), or any municipal capital improvements program that are to be included in the analysis, along with techniques for estimating traffic diversion to major new programmed facilities.
 - a. Based on information provided by the Maryland State Highway Administration, two projects not listed as fully funded in the CTP should be assumed to be fully funded in the first four years of the CTP: the portion of the ICC between I-370 and Georgia Avenue (Contract A), and the grade separation of MD 355 at Montrose and Randolph Roads.

8. traffic circulation and/or safety concerns related to site access (generally applied to public or private facilities with 800 or more seats or which can otherwise accommodate 800 or more people during an event).
9. a feasible range of types of traffic engineering improvements or trip mitigation measures associated with implementing the development.
10. the number, size, and use of buildings or types of residential units on the site.
11. queuing analysis, if required (see Section V).
12. **Pedestrian and Bicycle Impact Statement**

To assure safe and efficient pedestrian and bicycle access and circulation to and within the site, the study will include:

- a. pedestrian and/or bicycle counts at intersections.
- b. the effect of the project on pedestrian and bicyclist access and safety on the site and the surrounding area.
- c. what capital or operating modifications, if any, will be required to promote and maximize safe pedestrian and bicyclist access to, and in the area of, the site.
- d. An inventory map of existing and/or proposed sidewalks, off-road shared-use paths and/or bikeways near the site, noting whether or not the construction is generally consistent with the County's Road Code design standards and for sidewalk/path and landscape panel width.
- e. lead-in sidewalks to the site and connectivity to the local area.
- f. existing and/or proposed bus stops, shelters and benches, including real time transit information.
- g. pedestrian and bicycle accommodations at nearby intersections; e.g. crosswalks, pedestrian signals, push buttons, median refuges, ADA-compatible ramps.
- h. information on bus route numbers and service frequency
- i. sufficient bicycle racks and/or lockers on site.
- j. recognition of peak pedestrian and/or bicycle activity periods; e.g., evenings related to restaurants.

13. Traffic Mitigation Agreement

An applicant proposing trip reduction must include the following information in a LATR study or PAMR study for staff to find that the study is complete:

- 1) A description of proposed Traffic Mitigation Agreement (TMAg) elements that will also be included in staff report, and ultimately approved by and included in the opinions issued by either the Planning Board or the Board of Appeals:
 - a) The vehicle trip reduction goals or objectives, including the specific number of peak hour vehicles to be reduced in both the weekday AM and PM peak periods.

- b) The types of services or actions proposed to be included in the TMAg and a quantitative assessment of how those services or actions will achieve the required vehicle trip reduction objective.
 - c) The duration of the TMAg (where the expectation is majority of TMAg provisions will extend in perpetuity).
 - d) Whether the TMAg will be enforced based on the provision of specified services or actions (regardless of outcome), the measured outcome (regardless of services or actions provided), or a combination of both approaches.
 - e) The measures of effectiveness to be used in the enforcement process.
 - f) The method and frequency of monitoring the measures of effectiveness.
 - g) The penalties that will be applied if the vehicle trip reduction objectives are not met.
- 2) Written statements from both the Department of Public Works and Transportation (DPWT) and Planning Department staffs concurring with the general approach proposed.

In general, periodic TMAg performance monitoring by DPWT and a Planning Board Auditor will be required for Traffic Mitigation Agreements that are designed to mitigate at least 30 peak hour vehicle trips. For projects mitigating fewer than 30 trips, the Planning Board may allow binding elements of a preliminary plan or sight plan in lieu of a formal TMAg. For projects located in a Traffic Management District (TMD) applicable TMD requirements also apply independent of any PAMR or LATR Traffic Mitigation Agreement requirements.

PAMR trip mitigation requirements apply to both weekday AM peak period and weekday PM peak period trips.

To calculate “mitigated trips” for the Alternate Review Procedure or to meet LATR/PAMR the applicant must explicitly document the conversion between person-trips and vehicle trips to account for transit use, vehicle occupancy, walk/bike use, internal site trip capture, and telecommute options. The estimates should document the effect of home-based work trips separately from all other trips. Special trip rates in the Appendices to this document, such as for office uses within 1,000 feet of Metrorail stations outside the Beltway, or rates for any uses within the Bethesda, Silver Spring, and Friendship Heights CBDs should not be used in either “non-mitigated” or “mitigated” trip calculations. Countywide rates found in Appendix A and B are allowed, otherwise calculation rates and procedures recommended in documents published by the Institute of Transportation Engineers or the Transportation Research Board must be applied and referenced for staff to consider the quantification of any trip reduction proposal.

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.

IV. Findings for Inadequate Facilities

The Transportation Planning staff report to the Planning Board will present findings for each of the categories identified below and make 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 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 condition so that they can work together to develop a feasible solution to mitigate the impact. The Planning Board may select either traffic mitigation agreements, non-automobile transportation facilities, or physical road improvements (or a combination thereof) as the required means to relieve local congestion. Priority will be given to non-physical improvements in Metro Station and CBD policy areas. (See Section VI.)

The Growth Policy seeks to reduce congestion in areas where it may already be unacceptable. It stipulates that where local area conditions that exceeds the congestion standard for that policy area the development may only be approved if the applicant agrees to mitigate the LATR impact by either:

- a sufficient number of trips to bring the local area condition to within the congestion standard, or
- a number of trips equal to 150% of the CLV impact attributable to the development. Where any type of mitigation listed in this document or acceptable to the Planning Board can be used to achieve this goal.

If physical improvements are to be considered in Metro Station and Central Business District (CBD) policy areas, priority consideration will be given to improving the most congested intersections in that policy area, even though they may not be in the specific local area included in a given traffic study. Efforts will be made to combine the resources of two or more developers to provide appropriate transportation improvements, be they physical intersection improvements or other trip mitigation measures.

Once the applicant, Transportation staff, and staff of DPWT and/or SHA have identified and agreed that there are feasible 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 operations changes beyond those currently programmed, or non-programmed transit or ridesharing activities that would make the overall transportation system adequate.

If an applicant is participating in a traffic mitigation program and/or one or more intersection improvements to satisfy Local Area Transportation Review requirements, that applicant shall be considered to have met Local Area Transportation Review for any other intersection where the volume of trips generated by the site under consideration is less than five Critical Lane Movements.

In the case of developments that elect to use one of the special procedures in the Growth Policy described in Appendix D, the solutions must be identified and agreed to as above but will not be made conditions of approval.

B. Degree of Local Congestion

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

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 assumed. In areas where greater transit accessibility and use exist, greater traffic congestion is permitted. Table 1, which shows the Critical Lane Volume congestion standard adopted by the County Council for each policy area, is based on this concept.

Transportation Planning staff will present findings comparing the calculated CLVs with the congestion standard(s) of the nearby intersections. If the congestion standard is exceeded under background conditions, an applicant is required to provide a traffic mitigation program (consisting of either or both trip reduction or intersection improvements) sufficient to either:

- bring the intersection to acceptable levels of congestion, or
- result in improved operating conditions equal to 150 percent of the CLV impact attributable to the development as measured by CLV than those that would occur without the applicant's development.

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 other than for site access unless such streets have been functionally classified as being suitable for handling background and site-generated trips, e.g., arterial, business district, or higher classifications.

D. Transportation Demand Management (TDM) Strategies

As part of the traffic study review and approval Transportation Planning staff, in coordination with staff from DPWT, will confirm the degree to which transit (i.e., bus service, proximity to a Metrorail station), ridesharing or other TDM activities can be considered to mitigate vehicle trips generated by a development. If there is sufficient potential for serving the proposed development and/or immediate area with transit or ridesharing services, then priority will be given to developing a transit alternative or trip mitigation program to mitigate the development's local and policy area traffic impact. 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. In most cases, TDM strategies will be included in TMAgs and monitored over time to ensure effectiveness.

E. Project-Related Traffic

Transportation Planning staff will identify the degree to which local traffic congestion 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 more trips the proposed development contributes to local traffic congestion, the greater the assumed severity of local impact.

F. Queuing Analysis

In addition to the CLV analysis, staff may require queuing analysis where deemed appropriate. The generally accepted practice for evaluating queue lengths in CBDs and MSPAs is to observe the existing maximum queue during the peak hour and add background and site-generated traffic, assuming LATR lane distribution factors, a 25' average vehicle length, and a division of hourly approach volumes equally among the number of signal cycles in the peak hour. Alternative methods, such as simulation using software such as Synchro or CORSIM, may be acceptable if all simulation parameters are agreed to by staff.

The average queue length in the weekday peak hour 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 weekday peak hour should not extend more than 90 percent of the distance to the adjacent signalized intersection.

IV. Procedures for Application in the Central Business District (CBD) and Metro Station Policy Areas

Except where noted, the technical definitions and procedures applied in Central Business District (CBD) and Metro Station Policy Areas will be consistent with those defined elsewhere in these guidelines. In reviewing CBD and Metro Station Policy Area applications, the following criteria will be used:

A. Adequacy of Traffic Flows

1. Any intersection with a CLV of 1,800 or less will, in most cases, be considered acceptable with no further analysis required. However, Transportation Planning staff may require the queuing analysis noted in 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 as early in the review process as possible, and no later than official written notification 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 generally accepted practice for evaluating queue lengths in CBDs and MSPAs is to observe the existing maximum queue during the peak hour and add background and site-generated traffic, assuming LATR lane distribution factors, a 25' average vehicle length, and a division of hourly approach volumes equally among the number of signal cycles in the peak hour. Alternative methods, such as simulation using software such as Synchro or CORSIM, may be acceptable if all simulation parameters are agreed to by staff.

The average queue length in the weekday peak hour 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 weekday peak hour 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 B.2.b. of this section.

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

B. Site Access and Pedestrian/Bicycle Safety

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

1. Vehicle 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 should be avoided, but if proposed it will be considered in the context of the application.
2. In addition to the Pedestrian Impact Statement (III.B.12), Pedestrian and bicycle safety shall be assessed based on the following characteristics:
 - a. Conflicts between pedestrians, bicycles, and vehicles of all types accessing the site shall be minimized. Actions shall be taken to ensure pedestrian and bicycle 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 pedestrians to completely cross the street walking at a speed of 3.5 feet per second. Where possible, enough time should be provided to completely cross while walking at 3.0 feet per second. An additional 5 seconds should be added to the minimum crossing time to reflect the delay in pedestrians “stepping off the curb” in competition with vehicles turning during the walk cycle.

In Metro Station Policy Areas (MSPA) cases where pedestrian crossing time criteria are not met, the applicant must inform DPWT of the condition and request them to revise the signal timing.

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

C. Other Criteria

1. Total traffic is defined as the existing traffic, plus trips from approved but unbuilt developments, plus the trips from the proposed development during the peak hour of the weekday morning and evening peak periods.

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. In some cases, where site volumes are large, additional intersections within or contiguous to the CBD or Metro Station Policy Area may be identified by Transportation Planning staff for inclusion in the traffic study.
3. Vehicles can be assigned to parking garages encountered on their trip into the CBD or Metro Station Policy Area. The capacity of parking garages must be accounted for based on guidance from the Transportation Planning staff and consultation with DPWT staff.
4. Trip generation rates for background and site development traffic are contained in Appendices A, B, and C.

D. Information Provided by Staff

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

1. Existing traffic counts 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.

E. Traffic Mitigation Agreement

Each applicant in a Transportation Management District (TMD) must have a proposed Traffic Mitigation Agreement (TMAg) outlining a participation plan for trip reduction measures and other strategies for participating in efforts to achieve the mode share goals for that area. This plan should be prepared in conjunction with the area's Transportation Management District, if applicable, DPWT, and Transportation Planning staff. The TMAg for TMD participation may be structured to also incorporate any applicable PAMR requirements.

F. Participation in Transportation Improvements

Applicants may be required by the Planning Board to participate in some of the transportation improvements included in a capital program. This participation, which will be proportional to the development impact on the improvement, will be determined by the staffs of Transportation Planning, DPWT and the Maryland Department of Transportation. 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 or Policy Area Mobility Review Impact For Residential and Non-Residential Development

1. Traffic Mitigation Agreement (TMAg) Measures

The applicant may be required to reduce LATR and PAMR impact by entering into a legally-binding agreement (or contract) with the Planning Board and the Department of Public Works and Transportation (DPWT) to mitigate the impact of all or a part of their site-generated trips within the policy area where the site is located. Each traffic mitigation program will be required to operate for at least 12 years once trip reduction requirements are initially achieved and after use and occupancy permits are drawn. Many elements are designed to continue in perpetuity.

The following are examples of the measures that could be included in a TMAg:

- Subsidizing transit fares to increase ridership on existing or other transit bus routes
- Constructing a new park-and-ride facility and maintain it over time
- Providing funds to increase use of an existing park-and-ride facility
- Funding a private shuttle service; e.g., to and from the site to a nearby Metrorail station or to a park-and-ride facility
- Constructing queue-jumper lanes, providing traffic signal pre-emption devices and other techniques to improve bus travel times. Only results that are shown to improve travel times are to be considered.
- Parking management activities
- Live-near-your-work programs

Other measures may be suggested by applicants, Transportation Planning staff, or DPWT; creative approaches to reducing traffic impacts are encouraged.

TMAgs require monitoring, as appropriate for each project. Monitoring will be done on a quarterly basis, at minimum, at the applicant's expense by DPWT staff or a consultant selected by the Planning Board to ensure compliance with the conditions of the contract. If the goals are not being met, DPWT staff or the consultant shall monitor the TMAg on a monthly basis until such time as the goals are met for three consecutive months. Transportation Planning staff and DPWT staff shall work with the applicant to seek additional measures to ensure compliance during periods when the goals are not being met.

2. Non-Automobile Transportation Facilities

To maintain an approximately equivalent transportation level of service at the local level considering both auto and non-auto modes of travel, the Planning Board may permit a reduction in the amount of roadway improvements or traffic mitigation needed to satisfy the conditions of Local Area Transportation Review in exchange for the installation or construction of non-automobile transportation facilities that will enhance pedestrian safety or encourage non-automobile mode choices, such as sidewalks, bike paths, curb extensions, countdown pedestrian signals, “Super Shelters,” bus shelters and benches, bike lockers and static or real time transit information signs.

Such facilities must be implemented so as to offset the local area impact at the specific intersection(s) where the congestion standard has been exceeded and the need for an improvement has been identified. Thus, trip distribution and assignment assumptions are a key factor in determining local area intersection impacts and the level of trip mitigation required.

In determining the “adequacy” of such improvements in mitigating local area congestion, the Planning Board must balance the environmental and community impacts of reducing congestion at an intersection against the safe and efficient accommodation of pedestrians, bike riders and bus patrons. Periodic monitoring shall not be required of non-automobile transportation facilities.

a. Construction of Sidewalks, Bike Paths, Curb Extensions, Pedestrian Refuge Islands, Accessible (for the visually-impaired community) or Countdown Pedestrian Signals and Handicap Ramps

An applicant may propose to reduce LATR impact by constructing off-site sidewalks and/or bike paths, curb extensions, pedestrian refuge islands, accessible or countdown pedestrian signals and handicap ramps which provide safe access from the proposed or an existing development to any of the following uses:

- Transit stations or stops (rail or bus)
- Public facilities (e.g., school, library, park, or post office)
- Recreation centers
- Retail centers that employ 20 or more persons at any time
- Housing projects
- Office centers that employ 100 or more persons
- Existing sidewalks or bike paths
- Adjacent development(s) or private amenity space; e.g., sitting area, theater, community center

Curb extensions may be considered along streets on which on-street parking already exists, provided they do not reduce traffic capacity and operations at the proposed intersection(s). Accessible pedestrian signals (for the visually-impaired community), retrofitting existing traffic signals with countdown lights, and reconstructing existing sub-standard handicap ramps (to current ADA guidelines) should be allowed as optional facilities.

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

An excellent resource for considering new segments of bikeways is the Countywide Bikeway Functional Master Plan. A prioritization strategy from the document contains lists of bikeways categorized by activity centers; e.g., Metrorail, central business districts, major county park trails (see Appendix F).

b. Provision of “Super Shelters”, Bus Shelters and Benches

An applicant may propose to reduce LATR impact by constructing a “Super Shelter”, bus shelter or bench, including a concrete pad, to encourage bus use, which reduces weekday peak-hour vehicle trips by diverting some person-trips to buses. There are two types of shelters that can be provided: “standard” bus shelters and “Super Shelters.”

- The County has an agreement with Clear Channel Communications (CCC) to provide a minimum of 500 standard bus shelters in the County. CCC has first choice of locations for these shelters, a number of which will carry advertising. Standard bus shelters to be provided under LATR must be located in areas where CCC chooses not to provide shelters. CCC must be offered first right of refusal for any new sites if the placement of a shelter is accepted as a proposal by the developer.
- “Super Shelters” include heating and lighting, are larger in capacity, have four walls (except for openings to enter and exit the shelter) and provide a higher level of design than standard shelters. An example of one such shelter is the one located on Rockville Pike near Marinelli Road (as part of an agreement with Target/Home Depot). Provision of these shelters should be incorporated as part of development planning and will need to be coordinated with existing and planned locations for standard shelters.

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 20 minutes or less during the weekday morning and evening peak periods.

For any off-site improvement shown 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 and DPWT staffs agree would increase the safety of the crossing.

c. Provision of Bike Lockers

An applicant may propose 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.

d. Provision of Static and Real-Time Transit Information Signs, and Information Kiosks

An applicant may propose to reduce LATR impact by providing static or electronic signs, and/or information kiosks at bus shelters, large office buildings, retail centers, transit centers, or residential complexes that indicate scheduled or real-time transit information, e.g., the scheduled or estimated arrival of the next bus on a given route.

Static transit information signs may be provided only at locations other than CCC-provided standard bus shelters, since provision of this type of information at those shelters is part of that agreement. For static transit information provided at office buildings, retail centers, etc., the applicant should include provision for changing this information three times per year.

e. Graduated and Maximum Trip Reduction Credits

Related to the construction or provision of the above (a through d), the maximum trip credit 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 enhance pedestrian safety and/or encourage transit and bike use in these areas. (See Table 3.)

Table 3 identifies trip reduction options. Any or all of the options may be used for a given application. The maximum trip reduction per development is a function of the policy area congestion standard, as shown in Table 3.

Table 3: Graduated and Maximum Trip Credits Related to Congestion Standards

Non-Automobile Transportation Facility	Trip Credit vs Congestion Standard		
	1350-1500	1550-1600	1800
100 linear feet of five-foot wide sidewalk	0.5	0.75	1.0
100 linear feet of eight-foot wide bike path	0.5	0.75	1.0
Curb Extension/Pedestrian Refuge Island/Handicap Ramp	2.0	3.0	4.0
Accessible or Countdown Pedestrian Signals/Intersection	1.0	2.0	3.0
Bus Shelter	5.0	7.5	10.0
“Super” Bus Shelter	10.0	15.0	20.0
Bus Bench with Pad	0.5	0.75	1.0
Information Kiosk	1.5	3.0	4.5

Bike Locker (set of eight)	2.0	3.0	4.0
Real-Time Transit Information Sign	10.0	15.0	20.0
Static Transit Information Sign	0.25	0.4	0.5
Maximum Trip Credits	60	90	120

B. 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. If a proposed development generated more than 30 total weekday peak-hour trips, a traffic study would be required. If an applicant proposes a traffic mitigation agreement or non-automobile transportation facilities, the reduction will be accounted for in the traffic study. An applicant proposing these trip reduction strategies may be required to gather data on current bus patronage or pedestrian/bicycle activity within the local area 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.

C. Payment instead of construction

For requirements of LATR where an applicant has made a good faith effort to implement an acceptable improvement and where the Board finds that a desirable improvement cannot feasibly be implemented by the applicant but that it can be implemented by a public agency within 4 years after the subdivision is approved, The County Council has authorized the Planning Board to accept payment to the County of a fee commensurate with the cost of the required improvement.

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). For a project to qualify to be used in a traffic study, the project must be fully funded for construction within four years in the CIP or CTP as of the date of submission of the traffic study.

However, under certain circumstances, staff may recommend to the Planning Board that a decision on making physical intersection improvements be delayed until building permit; i.e., when a County or State capital project has some funding for right-of-way and/or construction. The Planning Board condition would require the developer to consult with the County or State when building permit applications are filed. If the County or State agrees in writing that the capital project will be constructed within four years, then the developer will contribute an amount equivalent to the cost of the LATR improvements at that time.

B. Trip Generation

Trip generation equations and rates are shown in Appendix A for nine general land uses: general office, retail, residential, fast food restaurants, child day-care centers, private schools/educational institutions, senior/elderly housing, mini-warehouse, 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. Guidance regarding pass-by and internal trip capture rates can be found in the current ITE *Trip Generation Handbook (2nd Edition)*. Assistance with the calculation of trips can be obtained from Transportation Planning staff - and/or use of the trip tables in Appendix B. In the Silver Spring, Bethesda, and Friendship Heights CBDs, different rates reflecting higher transit use 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, B, and C as needed, to reflect new information or to correct errors. Therefore, the user should check with Transportation Planning staff 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 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 be considered by Transportation Planning staff and used with their concurrence.

C. Peak Hour

The traffic study shall be based on the highest one-hour period that occurs during the typical weekday morning (6:30 a.m.-9:30 a.m.) and/or evening (4:00 p.m.-7:00 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 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). For land uses, i.e., retail, not covered by the guidelines, distribution should be developed in consultation with Transportation Planning staff.

E. Directional Split

The directional split is the percentage of the generated trips entering or leaving the site during the peak hour. Refer to the tables in Appendix A to obtain the directional split for general office, retail, residential, child day-care center, auto filling station with convenience store, and fast food restaurant 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 are not available, Transportation Planning staff, along with the applicant, will determine an appropriate in/out directional split.

F. Trip Assignment

The distribution factors furnished by Transportation Planning staff shall be applied to the generated trips, and the resulting traffic volumes shall be 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 Transportation Planning staff (see Table 2).

It should be noted that this is an estimate of the impact of future traffic on the nearby road network. Trip distribution and assignment are 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 revisions to the Highway Capacity Manual published by the Transportation Research Board of the National Research Council. The analysis should be carried out for the peak hour of both the weekday morning and evening peak periods and should use traffic data for non-holiday weekdays.

H. Traffic Data

1. Current existing traffic volume data may be available from either Transportation Planning's traffic count database, SHA or DPWT.
2. New traffic counts should be conducted 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.
3. If turning movement data are older than one year when the traffic 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 obtained from public agencies or conducted by the applicant must be manual turning movement counts of vehicles and pedestrian/bicycle crossing volumes covering the typical weekday peak periods, i.e., 6:30 a.m. - 9:30 a.m. and 4:00 p.m.-7:00 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, 5:00-6:00, 5:15-6:15, 5:30-6:30, 5:45-6:45, or 6:00-7:00 p.m.) as described in Section VII.C. All weekday peak-period (6:30 a.m.-9:30 a.m. and 4:00 p.m.- 7:00 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. Traffic counts affected by adverse weather or nearby traffic incidents will not be accepted.
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 one year from the date of resubmittal 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 congestion at the critical locations (usually an intersection). Current CLV congestion standards for intersections in each policy area 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

The Critical Lane Volume method of calculating the level of congestion at a signalized or unsignalized intersection is generally accepted by most public agencies in Maryland, including the Maryland State Highway Administration, the Montgomery County Department of Public Works and Transportation, the Cities of Rockville, Gaithersburg, and Takoma Park and Transportation Planning staff at M-NCPPC. The methodology will fit most intersection configurations and can be varied easily for special situations and unusual conditions.

Whereas some assumptions (e.g., lane use factors) may vary from jurisdiction to jurisdiction, the general CLV methodology is consistent. An excellent reference source is SHA's web site: www.sha.state.md.us/businesswithsha/permits/ohd/impact_appendix/asp

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).

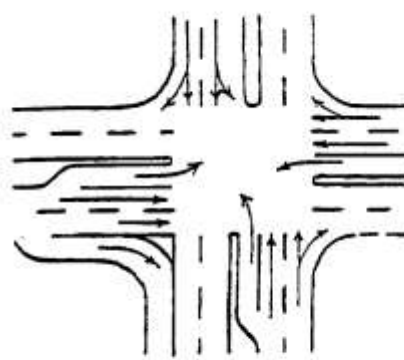
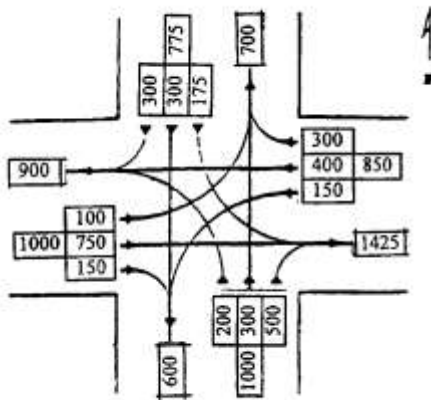
The following is a step-by-step description of how to determine the congestion level of an intersection with a simple two-phase signal operation.

- 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 right- or left-turn storage lanes -- the lane use factor for a single exclusive use lane is 1.00. Consult with Transportation Planning and/or DPWT staff regarding any overlap signal phasing).

Number of Approach Lanes	Lane Use Factor*
1	1.00
2	0.53
3	0.37
4	0.30
5	0.25

* Based on local observed data and the 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 ¹	X	411	200	611

South	800 ²	X	0.53	=	424	+	175	=	599
Or South	500	X	1.00	=	500	+	175	=	675 ⁵
East	700 ³	X	0.53	=	371	+	100	=	471
West	750 ⁴	x	0.53	=	398	+	150	=	548 ⁵

¹ Approach volumes sum of throughs, rights, and lefts in two lanes

² For a heavy right turn, evaluate worst of rights in one lane or through and rights in two lanes

³ Approach volume sum of throughs and rights in two lanes

⁴ Approach volume is through only because of free right and separate left

⁵ Intersection Critical Lane Volume = higher sum = 675 + 548 = 1,223

The following conditions should be observed where applicable:

- Right turn overlaps can be assumed where an exclusive right turn lane exists.
- Five leg intersections: The CLV for these intersections should be addressed according to the individual signal phases identified in the field.
- In cases where pedestrian crossing time criteria are not met, the applicant must inform DPWT of the condition and request that they revise the signal timing.
- For roundabouts; a CLV calculation should be performed by calculating the sum of the approach flow and circulating flows, as defined by the Highway Capacity Manual, for each approach and comparing the highest sum to the LATR standards.

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

Two copies of the traffic study must be submitted with the development application. Once Transportation Planning staff confirms that the traffic study is complete, ten copies must be submitted within five working days of notification.

In an effort to standardize the information that is to be included with a traffic study, the following items must be submitted before the 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 transportation 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.
3. Name and contact information of the licensed or certified professional submitting the traffic study. Any Traffic study required for Local Area Transportation Review must be submitted by a registered Professional Engineer (PE), Certified Professional Traffic Operations Engineer (PTOE), or Certified Professional Transportation Planner (PTP). This requirement will be effective for studies submitted after July 1, 2008.
4. Existing weekday morning and evening peak period vehicle and pedestrian/bicycle traffic count summaries for the critical intersections identified by Transportation Planning staff for analysis. It will include a qualitative statement regarding the

- observed traffic conditions if, during the time period that the counts were obtained, any queuing from downstream locations or other operational issues were observed.
5. 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.)
 6. 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.
 7. The trip distribution patterns, in percent, for the nearby approved but unbuilt developments during the weekday morning and evening peak hours, with the pattern being shown on an area map.
 8. Weekday morning and evening peak-hour trips entering and leaving the site, generated by the proposed development, including the site driveways.
 9. The trip distribution patterns, in percent, for the proposed development during the weekday morning and evening peak hours, with the pattern being shown on an area map.
 10. 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.
 11. 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.
 12. Copies of all critical lane volume analyses, showing calculations for each approach.

13. 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.
14. Electronic copies of all vehicle, pedestrian and bicycle traffic counts in approved digital format submitted to MCP-TrafficCounts@mncppc-mc.org as stipulated by Transportation Planning staff.

Traffic counts affected by adverse weather or nearby traffic incidents will not be accepted.

15. Once accepted, a copy of the traffic study in .PDF format will be submitted to Transportation Planning Staff for inclusion in the application file and available for public view via the web (DAIC) or FTP.

VIII. Policy Area Mobility Review

Background

There are two components to Policy Area Mobility Review: Relative Arterial Mobility and Relative Transit Mobility for each policy area. Relative Arterial Mobility is a measure of congestion on the County’s arterial roadway network. It is based on the urban street delay level of service in the 2000 Highway Capacity Manual, published by the Transportation Research Board. This concept measures congestion by comparing modeled (congested) speeds to free-flow speeds on arterial roadways. It then assigns letter grades to the various levels of roadway congestion, with letter A assigned to the best levels of service and letter F assigned to the worst levels of service. For a trip along an urban street that has a free-flow speed (generally akin to posted speed) of 40 MPH, LOS A conditions exist when the actual travel speed is at least 34 MPH, including delays experienced at traffic signals. At the other end of the spectrum, LOS F conditions exist when the actual travel speed is below 10 MPH.

Table 4. Relative Arterial Mobility and Arterial LOS

<i>If the actual urban street travel speed is</i>	<i>PAMR Arterial LOS is</i>
At least 85% of the free-flow speed	A
At least 70% of the highway speed	B
At least 55% of the highway speed	C
At least 40% of the highway speed	D
At least 25% of the highway speed	E
Less than 25% of the highway speed	F

Any policy area with an actual urban street travel speed equal to or less than 40 percent of the highway speed must be considered acceptable only with full mitigation for transportation.

The PAMR evaluates conditions only on the arterial roadway network. Freeway level of service is not directly measured because County development contributes a relatively modest proportion of freeway travel, and because the County has limited influence over the design and operations of the freeway system. However, because arterial travel is a substitute for some freeway travel, PAMR indirectly measures freeway congestion to the extent that travelers choose local roadways over congested freeways.

Relative transit mobility is based on the Transit/Auto Travel Time level of service concept in the 1999 Transit Capacity and Quality of Service Manual published by the Transportation Research Board. It is defined as the relative speed by which journey to work trips can be made by transit, as opposed to by auto. This concept assigns letter grades to various levels of transit service, so that LOS A conditions exist for transit when a trip can be made more quickly by transit (including walk-access/drive-access and wait times) than by single-occupant auto. This LOS A condition exists in the Washington region for certain rail transit trips with short walk times at

both ends of the trip and some bus trips in HOV corridors. LOS F conditions exist when a trip takes more than an hour longer to make by transit than by single-occupant auto.

This ratio between auto and transit travel times can also be expressed in an inverse relationship, defined by modal speed. If a trip can be made in less time by transit than by auto, the effective transit speed is greater than the effective auto speed. Based on the typical roadway network speed during the AM peak period, the Planning Board established the following relationship between auto and transit trips:

Table 4.1. Relative Transit Mobility and Transit LOS

<i>If the effective transit speed is</i>	<i>PAMR Transit LOS is</i>
100% or more (e.g., faster) than the highway speed	A
At least 75% of the highway speed	B
At least 60% of the highway speed	C
At least 50% of the highway speed	D
At least 42.5% of the highway speed	E
Less than 42.5% of the highway speed	F

Any policy area with an effective transit speed equal to or less than 42.5 percent of the highway speed must be considered acceptable only with full mitigation for transportation.

The PAMR Arterial LOS and the PAMR Transit LOS standards are inversely related, reflecting the County’s long-standing policy to encourage concentrations of development near high-quality transit. To accomplish this policy, greater levels of roadway congestion should be tolerated in areas where high-quality transit options are available. The PAMR uses the following equivalency:

Table 4.2 Equivalency Between Transit LOS and Arterial LOS

If the forecasted PAMR Transit LOS is:	The minimum acceptable PAMR Arterial LOS standard is:
A	D
B	D
C	D
D	C
E	B
F	A

This chart reflects the County Council’s policy decision that the PAMR Arterial LOS standard should not fall below LOS D, even when the PAMR Transit LOS standard is A.

Using a transportation planning model, the Planning staff has computed the relationship between a programmed set of transportation facilities and the geographic pattern of existing and approved

jobs and housing units. The traffic model tests this future land use pattern for its traffic impact, comparing the resulting traffic volume and distribution to the arterial level of service standard for each policy area.

This analysis results in a finding of acceptable with full mitigation for a policy area if:

- (a) the level of service on local roads in the policy area is expected to exceed the arterial level of service standard, or
- (b) the magnitude of the hypothetical future land use patterns in that policy area will cause the level of service on local roads in any other policy area to exceed the arterial level of service standard for that policy area.

If this annual analysis results in a finding of acceptable with full mitigation for a policy area for a fiscal year, the Planning Board must not approve any more subdivisions in that policy area in that fiscal year, except as provided below. For FY2008, the Planning Board must consider the Germantown East, and Gaithersburg City Policy Areas to be acceptable with full mitigation for transportation.

When this annual analysis results in a finding of acceptable with partial mitigation for a policy area for a fiscal year, the Planning Board must not approve any more subdivisions in that policy area in that fiscal year except under certain special circumstances outlined below. For FY2008, the Planning Board must consider certain policy areas to be “acceptable with partial mitigation” for transportation at the policy area level. The full listing of policy areas for which either full or partial mitigation is required in FY 2008 are listed below:

Table 4.3 Trip Mitigation Required by Policy Area

Policy Area	Trip Mitigation Required
Aspen Hill	40%
Bethesda/Chevy Chase*	30%
Damascus	5%
Derwood *	5%
Fairland/White Oak	45%
Gaithersburg City	100%
Germantown East	100%
Kensington/Wheaton*	10%
North Bethesda*	25%
Olney	25%
Potomac	40%
Rural East	5%
Silver Spring/Takoma Park*	15%
Rockville	25%

The trip mitigation also applies to the Metro Station Policy Areas as indicated with an asterisk in the table above and itemized below:

- The Bethesda/Chevy Chase Policy Area includes the Bethesda CBD and Friendship Heights CBD Policy Areas
- The Derwood Policy Area includes the Shady Grove Policy Area
- The Kensington/Wheaton Policy Area includes the Glenmont and Wheaton CBD Policy Areas
- The North Bethesda Policy Area includes the Grosvenor, Twinbrook, and White Flint Policy Areas
- The Silver Spring/Takoma Park Policy Area includes the Silver Spring CBD Policy Area.

An applicant for a preliminary plan of subdivision need not take any mitigating action under Policy Area Mobility Review if the Planning Board finds that the proposed development will generate 3 or fewer peak-hour trips. For retail uses, mitigation applies to primary trips, but not pass by or diverted trips.

The Planning Board, after considering any recommendation of the County Executive, may approve a preliminary plan application in a policy area found by Policy Area Mobility Review to be acceptable with full mitigation or acceptable with partial mitigation, as provided in this section. In approving plans in acceptable with full mitigation policy areas, the Board should ensure that the average level of service for the relevant policy area is not adversely affected. Except as otherwise expressly stated in the Development District Participation section of the Growth Policy, the same level of service criteria must be used in evaluating an application under this section.

The following options to mitigate the traffic impacts of development approved in a preliminary plan may be used, individually or in combination:

- **Trip Mitigation.** An applicant may sign a binding Traffic Mitigation Agreement (TMAg) under which up to 100% of the projected peak hour vehicle trips would be removed from the roadway by using Transportation Demand Management techniques to reduce trips generated by the applicant’s development or by other sites, so that an applicant could still generate a certain number of trips if the mitigation program removes an equal number of trips from other sites in the same policy area. Note that traffic mitigation (TMAgs) apply to both LATR and PAMR.
- **Trip Reduction by Providing Non-Auto Facilities.** An applicant may mitigate roadway congestion impacts to a limited extent by providing non-auto transportation facilities that will enhance pedestrian safety or increase the attractiveness of alternative modes of travel. The allowable facilities and their corresponding vehicle trip credits are shown in table 2. These facilities include sidewalks, bike paths, curb extensions, countdown pedestrian signals, bus shelters and benches, bike lockers, and static or real time transit information signs. These facilities can be provided in exchange for vehicle trip “credits”; both the credit value and maximum potential trip reduction credit (from 60 to 120 peak hour vehicle trips) will depend on the congestion standard for the policy area. An applicant may mitigate a limited number of trips by providing non-auto facilities that will make alternative modes of transit, walking, and bicycling safer and more attractive. The allowable actions and number of trips associated with them, as well as the maximum number of trip credits allowable with these actions, which will depend in part on the congestion standards for the policy area they are applied to, will be adopted by the Planning Board in their LATR Guidelines.

- **Adding Roadway Capacity.** An applicant may mitigate trips by building link-based roadway network capacity. The conversion rate between vehicle trips and lane miles of roadway is shown in Table 4.4. The values in that table are derived from regional estimates of vehicle trip length by trip purposes and uniform per-lane capacities for roadway functional classes that should be applied countywide. Several conditions apply:
 - The number of lane miles in Table 3 reflects total capacity provided, so that if an applicant widens a roadway by one lane in each direction, the total minimum project length would be half the length listed in the table.
 - The roadway construction or widening must have logical termini, for instance connecting two intersections.
 - The roadway construction must occur in the same Policy Area as the proposed development.
 - The roadway construction must be recommended in a master plan.
- **Adding Transit Capacity.** An applicant may mitigate inadequate PAMR conditions by buying 40-foot long hybrid electric fleet vehicles for the Ride-On system, and guaranteeing 12 years of operations funding, at the rate of 30 peak hour vehicle-trips per fleet vehicle. To qualify as mitigation under this provision, any bus must be an addition to the size of the Ride-On fleet and not a replacement for an old bus taken out of service.
- **Payment instead of construction.** The Planning Board may accept payment to the County of a fee commensurate with the cost of a required improvement if the applicant has made a good faith effort to implement an acceptable improvement and the Board finds that a desirable improvement cannot feasibly be implemented by the applicant but the same improvement or an acceptable alternative can be implemented by a public agency within 4 years after the subdivision is approved.

In general, each mitigation measure or combination of measures must be scheduled for completion or otherwise be operational at the same time or before the proposed development is scheduled to be completed and prior to use and occupancy permits being released. The nature, design, and scale of any additional facility or program must receive prior approval from any government agency that would construct or maintain the facility or program, and the applicant and the public agency must execute an appropriate public works agreement before the Board approves a record plat. The application must also be approved under Local Area Transportation Review.

Both the subdivision plan and all necessary mitigation measures must be consistent with an adopted master plan or other relevant land use policy statement. For the Planning Board to accept a roadway capacity improvement as a mitigation measure, the applicant must show that alternative non-auto mitigation measures are not feasible or desirable. In evaluating mitigation measures proposed by an applicant, the Board must place a high priority on design excellence to create a safe, comfortable, and attractive public realm for all users, with particular focus on high-quality pedestrian and transit access to schools, libraries, recreation centers, and other neighborhood facilities.

Table 4.4. PAMR Mitigation Options for Providing Roadway Capacity
 Minimum Length of Roadway Construction
 (Lane Miles of widening or new construction per 100 vehicle trips generated)

Land Use Type	Facility Type			
	Freeway	Major Highway	Arterial	Primary Residential
Office	0.38	0.51	0.77	1.54
Retail	0.24	0.31	0.47	0.94
Other Commercial	0.31	0.41	0.62	1.23
Residential	0.31	0.41	0.62	1.24

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

Table A-1: General Office

Applicable Size	Formula/Rate	Directional Distribution			
		AM		PM	
		Enter	Exit	Enter	Exit
Under 25,000 sf GFA	AM: $T = 1.38(A)$ PM: $T = 2.24(A)$				
25,000 sf GFA and over	AM: $T = 1.70(A) - 8$ PM: $T = 1.44(A) + 20$	87%	13%	17%	83%
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 (D)	AM: Deduct $P = 50\%$ total trips from "T" PM: Deduct $P = 4(1000-D)/100$ from "T"				

T = weekday peak-hour vehicle trips A = gross floor area (GFA) of building in 1,000 sf
P = percentage reduction in trips (P/100) D = straight line distance (in feet) from the main entrance to station

Table A-2: General Retail

Applicable Size	Formula/Rate*	Directional Distribution			
		AM		PM	
		Enter	Exit	Enter	Exit
All sizes except convenience retail	AM: Use 25% of the weekday evening peak-hour trips				
Under 50,000 sf GLA	PM: $T = 12.36(A)$	52%	48%	52%	48%
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 formula/rate				

T = weekday peak-hour vehicle trips A = gross leasable area (GLA) of building in 1,000 sf
*For no major food chain store, deduct (P): P = $0.05 + 0.002(200-A)$

Table A-3: Fast Food Restaurants

	Formula/Rate	Directional Distribution			
		AM		PM	
		Enter	Exit	Enter	Exit
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.	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.	53%	47%	53%	47%

Table A-4: Residential

Applicable Size	Formula/Rate		Directional Distribution			
Single-Family Detached	<u>Under 75 units</u>	<u>75 units or over</u>	AM		PM	
	AM: $T = 0.95 (U)$ PM: $T = 1.11 (U)$	AM: $T = 0.62 (U) + 25$ PM: $T = 0.82 (U) + 21$	Enter	Exit	Enter	Exit
			25%	75%	64%	36%
Townhouses	<u>Under 100 units</u>	<u>100 units and over</u>	AM		PM	
	AM: $T = 0.48 (U)$ PM: $T = 0.83 (U)$	AM: $T = 0.53 (U) - 5$ PM: $T = 0.48 (U) + 35$	Enter	Exit	Enter	Exit
			17%	83%	67%	33%
Garden and Mid-Rise Apartments (one to nine stories)	<u>Under 75 units</u>	<u>75 units and over</u>	AM		PM	
	AM: $T = 0.44 (U)$ PM: $T = 0.48 (U)$	AM: $T = 0.40 (U) + 3$ PM: $T = 0.47 (U) + 1$	Enter	Exit	Enter	Exit
			20%	80%	66%	34%
High-Rise Apartments (ten or more stories)	<u>Under 100 units</u>	<u>100 units and over</u>	AM		PM	
	AM: $T = 0.40 (U)$ PM: $T = 0.46 (U)$	AM: $T = 0.29 (U) + 11$ PM: $T = 0.34 (U) + 12$	Enter	Exit	Enter	Exit
			25%	75%	61%	39%

T = weekday peak-hour vehicle trips U = housing units

Table A-5: Private School (Weekday Morning Peak Period)

Applicable Size	Formula/Rate	Comments
K-8	AM: $T = N \times 0.92$	For the weekday morning peak period, a special study is required to determine the trip-generation rate for private schools with over 400 students.
K-12	AM: $T = N \times 0.78$	For the evening 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 evening peak period that would generate 50 or more weekday peak-hour trips.
Private schools predominately grades 10-12	Use the rates in the Institute of Transportation Engineer's <i>Trip Generation Report</i> for high schools (Land Use Code 530)	Trip-generation formulas or rates for private schools were developed based on the number of students during only the weekday morning peak period. Since classes for private schools end before the weekday evening peak period, a trip-generation rate during the weekday evening peak period was not developed.

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

T = weekday peak-hour vehicle trips

N = number of students

Table A-6: Automobile Filling Station

Applicable Size	Formula/Rate				
For stations with/without car washes, convenience stores, and garages T = N x (trip rate)	Trip Rates per Pumping Station¹:			PM	
	Station with fuel sales and:	AM	Upcounty ²	Downcounty ²	
	1) no other facilities	11.31	14.96	14.96	
	2) garage	11.00	16.67	11.09	
	3) convenience store ³	12.28	21.75	12.32	
	4) car wash and convenience store	17.33	21.75	15.08	
Percentage by Trip Purpose				Directional Distribution	
Weekday Peak Period	New	Pass-by	Diverted	AM	PM
				Enter	Exit
AM	15%	60%	25%	53%	47%
PM	15%	50%	35%	51%	49%

T = weekday peak-hour vehicle trips N = number of pumping stations (or positions)

¹A 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

²Downcounty locations are considered the urbanized areas with a congestion standard of 1,500 or higher (See Table 1). All other locations are considered upcounty.

³Note that a convenience store as *an accessory use* to an automobile filling 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.

Table A-7: Senior/Elderly Housing

Type of Facility	Formula/Rate
Retirement Community with active seniors and minimal support services	Use ITE Land Use Code 250
	<u>Formula</u>
Independent-Living Facilities with some support services plus minimal assisted-living and nursing home facilities	Up to 150 units: AM: T = 0.05 (U) PM: T = 0.04 (U) Over 150* units: AM: T = 0.08 (U) PM: T = 0.11 (U)
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.

T = weekday peak-hour vehicle trips

U = detached, attached apartment unit and/or room

*Usually large facilities with different levels of support services; may be considered "life cycle" care

Table A-8: Mini-Warehouse

Type of Facility	Formula/Rate	Comments
On-Site Vehicle Rental		
No	AM: T = 0.01 (N) PM: T = 0.01 (N)	Based on ITE Land Use Code 151 supplemented with more current local data
Yes	AM: T = 0.015 (N) PM: T = 0.02 (N)	

T = weekday peak-hour vehicle trips

N = number of storage units

Table A-9: Child Day-Care Center

Applicable Size		Formula/Rate					
For 6 to 25 staff		AM: T = 1.75N + 17					
		PM: T = 2.06N + 16					
Peak Period	Trip Purpose			Directional Distribution			
	New	Pass-by	Diverted	AM		PM	
				Enter	Exit	Enter	Exit
AM	32%	27%	41%	53%	47%	49%	51%
PM	27%	12%	61%				

T = weekday peak-hour vehicle trips

N = number of staff

*Appendix B: Weekday Peak-Hour Trips Generated
by Land Use for Use in Local Area Transportation
Review*

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

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	394
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/1000)
 PM peak-hour trips = 2.24(GFA/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 weekday 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)	Weekday 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 Trips Generated by General Retail

With Major Food Chain Store			Bldg Size	Peak-Hour Trips	
Bldg Size	Peak-Hour Trips		(SF of GLA)	AM	PM
(SF of GLA)	AM	PM			
50,000	155	619	5,000	9	35
55,000	164	656	10,000	18	70
60,000	173	693	15,000	27	108
65,000	182	730	20,000	36	146
70,000	192	767	25,000	46	185
75,000	201	804	30,000	57	226
80,000	210	841	35,000	67	268
85,000	220	879	40,000	78	311
90,000	229	916	45,000	89	356
95,000	238	953	50,000	101	402
100,000	248	990	55,000	108	433
105,000	257	1027	60,000	116	464
110,000	266	1064	65,000	124	496
115,000	275	1101	70,000	132	529
120,000	285	1139	75,000	141	563
125,000	294	1176	80,000	149	597
130,000	303	1213	85,000	158	633
135,000	313	1250	90,000	167	668
140,000	322	1287	95,000	176	705
145,000	331	1324	100,000	186	743
150,000	340	1362	105,000	195	781
155,000	350	1399	110,000	205	820
160,000	359	1436	115,000	215	859
165,000	368	1473	120,000	225	899
170,000	378	1510	125,000	235	941
175,000	387	1547	130,000	246	982
180,000	396	1584	135,000	256	1025
185,000	405	1622	140,000	267	1068
190,000	415	1659	145,000	278	1112
195,000	424	1696	150,000	289	1157
200,000	433	1733	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	399	1594
			200,000	412	1646

Equations Used

50,000 to 200,000 sf

AM peak-hour trips = $0.25 [7.43 (GLA/1000) + 247]$

PM peak-hour trips = $7.43 (GLA/1000) + 247$

Adjustment Factor for No Major Food Chain Store

$P = 0.05 + 0.002 [200 - (GLA/1000)]$

Please note:
Under 50,000 sf
 No equations, since major food chain store is typically at least 50,000 sf

Without Major Food Chain Store

Equations Used

Under 50,000 sf

AM peak-hour trips = $0.25 [12.36(GLA/1000)](1-P)$

PM peak-hour trips = $[12.36 (GLA/1000)](1-P)$

50,000 to 200,000 sf

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

PM peak-hour trips = $[7.43(GLA/1000) + 247](1-P)$

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 DETACHED

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 & MID-RISE APARTMENTS
 (one to nine stories)

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
 (ten or more stories)

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 Trips Generated by a Child Day-Care Center

Number of Staff	Total AM Trips	Total PM Trips
6	28	28
7	29	30
8	31	32
9	33	35
10	35	37
11	36	39
12	38	41
13	40	43
14	42	45
15	43	47
16	45	49
17	47	51
18	49	53
19	50	55
20	52	57
21	54	59
22	56	61
23	57	63
24	59	65
25	61	68

Peak Period	Directional Distribution		Trip Purpose		
	Entering	Exiting	New	Pass-by	Diverted
AM	53%	47%	32%	27%	41%
PM	49%	51%	27%	12%	61%

For six or fewer staff, there is no need for a traffic study to satisfy LATR. The applicant may proffer a specific schedule of the arrival and departure of those staff arriving during weekday peak periods specified in the special exception statement of operation.

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

Number of Students 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-generation rate.

Table B-6: Number of Weekday Peak-Hour 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			Rate		
	AM Peak-Hour Vehicle Trips per Unit of Development	% In	% Out	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 Morning and Evening Peak-Hour Trip-Generation Rates for the Silver Spring CBD

Land Use	Morning			Evening		
	Rate	% In	% Out	Rate	% In	% Out
Office (existing vacant/1,000 sf)	1.60	85	15	1.60	15	85
Office (pending + future/1,000 sf)	1.40	85	15	1.40	15	85
Industrial (1,000 sf)	1.00	85	15	1.00	15	85
Retail (1,000 sf)	0.50	50	50	2.00	50	50
Residential (high rise)	0.30	20	80	0.30	70	30
Residential (townhouse)	0.45	20	80	0.45	67	33
Hotel (room)	0.20	60	40	0.20	55	45

Appendix D: deleted.

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 *Local Area Transportation Review and Policy Area Mobility 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 intersections 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, Transportation Planning 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 shows the trip distribution by super-district as 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 Transportation Planning 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 assignment for the trips generated by the office and residential components of the site, respectively.

Figure E-1: Super Districts in Montgomery County

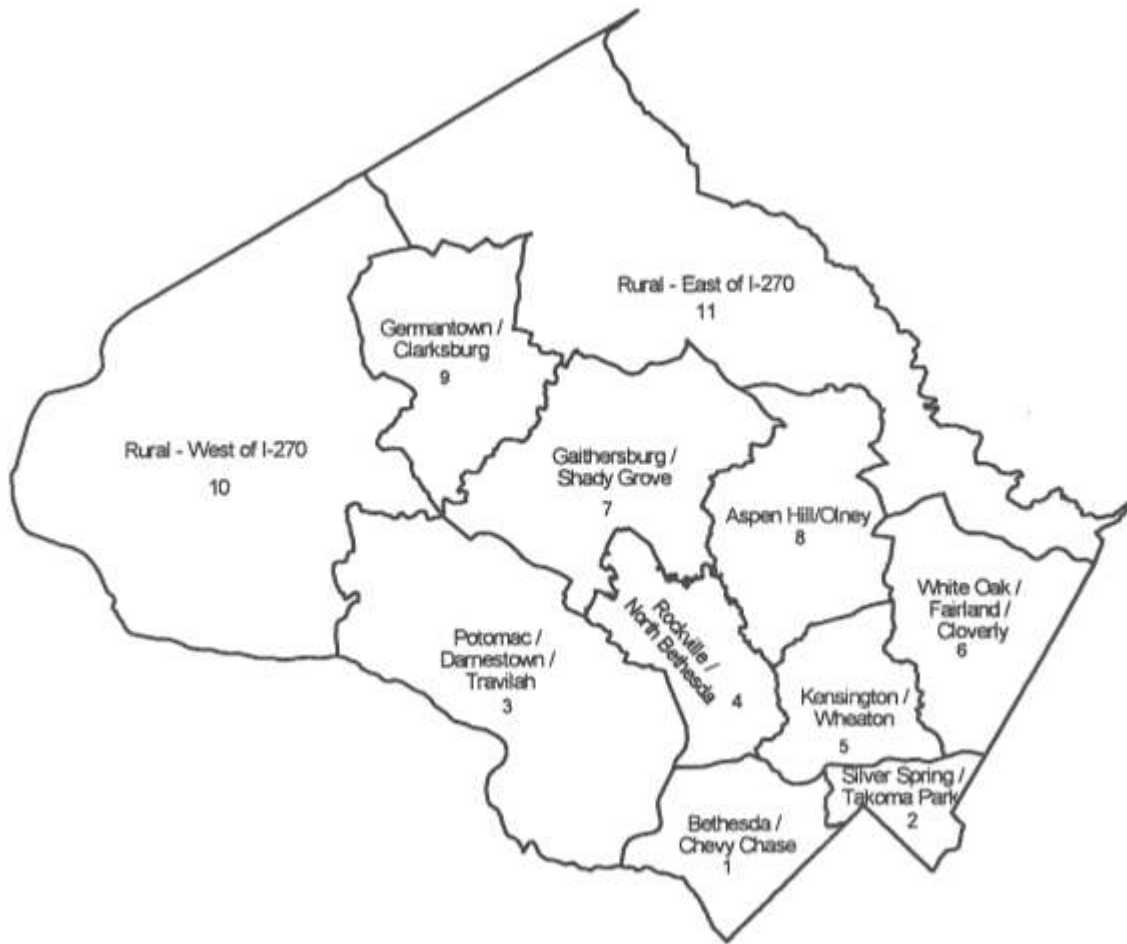


Figure E-2: Trip Distribution Converted to Traffic Assignment

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					Trip assignment for development case					TOTAL
		Montrose	MD 355	Randolph	MD 355	MD 187	Montrose	MD 355	Randolph	MD 355	MD 187	
		west	north	east	south	south	west	north	east	south	south	TOTAL
Bethesda	3.5%				50%		0.0%	0.0%	0.0%	1.8%	1.8%	3.5%
Silver Spring	2.2%				100%		0.0%	0.0%	0.0%	2.2%	2.2%	2.2%
Potomac	8.0%				20%		6.4%	0.0%	0.0%	0.0%	1.6%	8.0%
Rockville	12.8%		75%		20%		3.2%	9.6%	0.0%	0.0%	0.0%	12.8%
Kensington	7.2%			80%	20%		0.0%	0.0%	5.8%	1.4%	0.0%	7.2%
Fairland	4.1%			80%			0.0%	0.0%	3.3%	0.8%	0.0%	4.1%
Gaithersburg	14.4%		25%				10.8%	3.6%	0.0%	0.0%	0.0%	14.4%
Olney	6.5%		50%		30%		1.7%	4.3%	2.6%	0.0%	0.0%	8.5%
Germanstown	6.5%		10%				0.9%	0.0%	0.0%	0.0%	0.0%	6.5%
Agricultural Area (West)	0.9%						1.7%	1.7%	0.8%	0.0%	0.0%	4.2%
Agricultural Area (East)	4.2%		40%		30%		2.5%	0.0%	0.0%	1.1%	0.0%	3.6%
Washington, DC	3.8%		70%		100%		0.0%	0.0%	0.0%	8.6%	0.0%	8.6%
Prince George's County	6.8%			10%			6.2%	0.0%	0.8%	0.0%	0.8%	7.8%
Virginia	7.8%						4.6%	0.0%	0.0%	0.0%	0.0%	4.6%
Frederick County	4.6%						0.0%	0.3%	0.3%	2.3%	0.0%	2.9%
Howard County	2.9%		10%	10%	80%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL	100.0%						43.9%	20.1%	13.5%	18.4%	4.1%	100.0%
							USE ==>	44%	14%	18%	4%	100%
Part 2. Residential Component	Trip distribution by super-district	Trip assignment for origin by super-district					Trip assignment for development case					TOTAL
		Montrose	MD 355	Randolph	MD 355	MD 187	Montrose	MD 355	Randolph	MD 355	MD 187	
		west	north	east	south	south	west	north	east	south	south	TOTAL
Bethesda	15.6%				50%		0.0%	0.0%	0.0%	7.8%	7.8%	15.6%
Silver Spring	2.4%				100%		0.0%	0.0%	0.0%	2.4%	0.0%	2.4%
Potomac	3.3%				20%		2.6%	0.0%	0.0%	0.0%	0.7%	3.3%
Rockville	31.0%		75%		20%		7.8%	23.3%	0.0%	0.0%	0.0%	31.0%
Kensington	2.6%			80%	20%		0.0%	0.0%	2.1%	0.5%	0.0%	2.6%
Fairland	0.7%			80%			0.0%	0.0%	0.6%	0.1%	0.0%	0.7%
Gaithersburg	10.6%		25%				8.0%	2.7%	0.0%	0.0%	0.0%	10.6%
Olney	1.7%		50%		30%		0.3%	0.9%	0.5%	0.0%	0.0%	1.7%
Germanstown	1.0%		10%				0.0%	0.1%	0.0%	0.0%	0.0%	1.0%
Agricultural Area (West)	0.0%						0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Agricultural Area (East)	0.2%		40%		30%		0.1%	0.1%	0.0%	0.0%	0.0%	0.2%
Washington, DC	13.9%		70%		100%		9.7%	0.0%	0.0%	4.2%	0.0%	13.9%
Prince George's County	6.1%			10%			7.5%	0.0%	1.0%	0.0%	1.0%	9.7%
Virginia	9.7%						0.8%	0.0%	0.0%	0.0%	0.0%	0.8%
Frederick County	0.5%						0.0%	0.1%	0.1%	0.6%	0.0%	0.7%
Howard County	0.7%		10%	10%	80%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL	100.0%						37.7%	27.0%	4.2%	21.7%	9.4%	100.0%
							USE ==>	38%	27%	4%	9%	100%

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 Spring/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%	13.0%
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%	1.9%
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%
3. Potomac/Darnestown/Travilah	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%	9.7%
2. Silver Spring/Takoma Park	2.7%	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%	7.3%
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	12.1%	2.8%

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