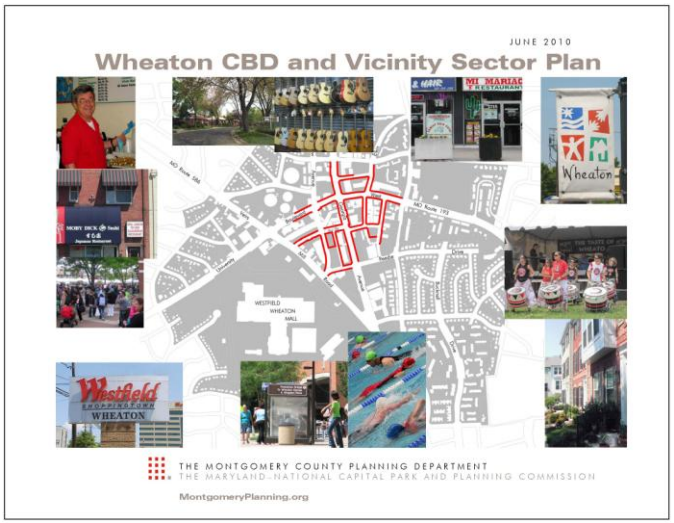
Appendix 3

Transportation Analyses

For more information, call the Transportation Division at 301-495-4525



Wheaton CBD and Vicinity Sector Plan

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Purpose

The Wheaton CBD has changed significantly in the years following the adoption of the 1990 Wheaton Sector Plan. The Metrorail station opened in September 1990—the same month as the Plan's adoption. A number of commercial establishments have joined the existing development mix, while others have left. Compact multifamily residential development has been completed both within and at the edge of the CBD. The introduction of new infrastructure and more transit-oriented development has changed the transportation network. Modifications to vehicular traffic flows, pedestrian circulation, and transit services within the CBD have occurred in response to Wheaton's growth.

The Public Hearing Draft of the Wheaton Sector Plan provides guidance and recommendations to improve the existing Wheaton transportation network so that the upcoming growth can be accommodated while preserving Wheaton's unique qualities.

The overall transportation approach consists of the following key elements.

- Build on the existing transportation network by improving the road, transit, bike, and pedestrian networks.
- Protect established neighborhoods by enhancing bike and pedestrian connections in particular.
- Propose new roadway connections with clear mobility and access benefits that promote reinvestment and place-making consistent with the Plan's vision.

This Appendix document includes analysis and research in support of the Plan recommendations. Topics discussed in the following pages include:

- better connecting Wheaton's street grid
- analysis of Wheaton's transportation networks
- existing and planned transit service
- parking strategies and forecasted use
- Transportation Demand Management and mode share goals.

The Appendix also documents the analysis of impacts to the Wheaton area road network based on the Policy Area Mobility Review (PAMR) and the Local Area Transportation Review (LATR) processes. These two processes help ensure that mobility measures established by the current Growth Policy are met in the Plan area—i.e., that the Plan is in balance with respect to land use and the transportation network.

Transportation Plan Recommendations

Table 1: Potential Transportation Management Strategies

	Strategy	Opportunities	Constraints	Potential to Meet Plan Goals
Demand Management	Consolidate surface parking through redevelopment of surface lots and County RFQ	Integrate with private development – potential for shared facilities, minimize land solely dedicated to parking	Requires public-private partnership, may take long time to implement, interruptions in service during consolidation/reconstruction	High
	Reduce single occupant vehicle mode share	Flexible, low capital cost	Operational costs, monitoring	High
Transit Services	Construct BRT through Plan area	Capitalize on Wheaton's role as transit hub and key east/west – north/south transfer point	Capital costs, operational costs, and right of way for full BRT option	High
	Local circulator bus routes	Increase non auto access to points throughout Wheaton	Operating cost	Moderate
Local Street Network	Build un-built master plan street segments	Provide alternate routes, reduce VMT	Capital costs, definition of final alignment and implementation responsibility	High
	One way pair on State Highway (Veirs Mill or Georgia Ave)	Ease congestion in CBD, provide framework for central grid of streets	Right of Way acquisition, increase in impervious surface, coordination with state/county, opposition from businesses	Low
	Pedestrian/Bicycle connections	Expand pedestrian/bike network with minimal impact, decrease number of long blocks, reinforces human scale	Primarily requires private implementation, connections may take a long time to implement	High
Polices	Diversify CBD Development	Create mixed use centers, provide housing near jobs, lower trip generation rates	Economic and market feasibility	High
	Increase short term parking supply	Ensure that small businesses have ample and proximate parking	May require redevelopment of some small business locations, significant public cost	Moderate
	Accept higher congestion levels	Consistent with urbanizing area, no capital cost	Customer costs, public acceptance	Low

Table 1 shows the range of transportation strategies examined in the Wheaton Sector Plan area and the likelihood that each strategy will help to achieve the Plan's goals. The strategies examined throughout the public planning process fall into broad categories:

- travel demand management
- transit services
- street network (including bicycle and pedestrian systems)
- local transportation system policies.

Each of these categories includes techniques with potential for meeting the Plan's goals for a transit-oriented CBD compatible with the surrounding established neighborhoods. The strategies offering the most potential are shaded in the table.

Travel Demand Management

Travel Demand Management (TDM) describes a range of programs and services designed to reduce the use of single-occupant vehicle trips. TDM strategies provide travel options that reduce and spread demand by travel destination, mode, route, and time of day to most efficiently use transportation system infrastructure and resources. TDM strategies can be implemented by the public and private sectors.

TDM strategies include:

- infrastructure such as high quality pedestrian environments; bus, HOV facilities, or preferential treatments; telework centers; commuter information stores; car- and bike-sharing stations (e.g., Zipcar); and well-located transit stations or stops with real-time transit information
- transit services, vanpools, ride-matching, guaranteed ride home services, and alternative commute option information (i.e., NBTC and the MWCOG Commuter Connections)
- policies that affect infrastructure and service use, including parking supply management, preferential parking treatments for carpools/vanpools, transit subsidies, flexible work schedules, tax incentives, congestion pricing, and distance-based or VMT pricing.

TDM strategies can be customized by target market and consider the type of land use (i.e., residential, commercial, or special event) and time of day (i.e., peak period, midday, or all day). Many TDM techniques are effective in reducing auto travel at all times of day, others are targeted to peak period conditions. The draft Plan recommends a continued focus on weekday peak period modal shifts to optimize transportation system performance when congestion is greatest.

As the County considers the climate change and energy requirements identified in the 2009 *Climate Protection Plan*, the emphasis of travel demand management will shift from managing traffic congestion to also reducing greenhouse gas emissions. The two objectives (peak period mobility versus daily or annual carbon footprint) are often, but not always, in sync. Shifting travel modes from auto to walking or biking will serve both objectives, and TDM policies should encourage this shift as the highest priority. On the other hand, shifting an auto trip from the peak

period to the off-peak period will serve the historic TDM objective of managing peak period performance, but has a smaller effect on greenhouse gas emissions (the difference between travel speeds and emissions during peak and off-peak periods).

The Plan focuses its TDM strategies on commuters who work in the Wheaton Sector Plan area for three reasons.

- Recurring vehicular travel demand is most constrained by traffic leaving the Plan area during the evening peak period.
- The location and market of the proposed multifamily, high rise housing provide high levels of transit use without the application of external TDM actions.
- TDM strategies at the workplace are often more effective than those applied in residential communities, due to economies of scale and the fact that the employer/employee relationship can be more productively applied than the residential owner/tenant relationship.

Proposed travel demand mode share targets for Wheaton area employees are based on analysis of observed travel behaviors in similar Montgomery County activity centers. Table 2 details recent commuter survey data for Bethesda, Germantown, Silver Spring, Wheaton, and White Flint. Master plan recommendations for non-auto driver mode share (NADMS) goals are based on a gradient of NADMS which is highest in the urban, down-County planning areas and lower farther from the region's urban core. High NADMS numbers typically correspond to a diverse set of factors typical of urban areas including parking lot districts, urban districts, and transportation management districts.

Wheaton's commuter survey data reveals a low NADMS based in part on its location near the eastern end of the Metrorail Red Line and the edge of the County's urban ring communities. However, its Metrorail station, proximity to Silver Spring, and the plan for BRT service along Veirs Mill Road suggest that a goal of 30 percent is attainable. One possible constraint for Wheaton is its diverse employment base with a high percentage of retail jobs and lower office employment relative to other urban centers such as Bethesda and Silver Spring. Current commuter survey data does not accurately reflect the travel behavior of retail employees in Wheaton, which could be influenced by non-peak work hours when transit service may not operate at frequencies suitable for routine use.

Conversely, transit use by residents in the Plan area for journey-to-work is estimated at 52 percent, nearly three times the Countywide average. As Wheaton becomes a more vibrant mixed-use center, one objective will be to ensure that transit, bicycling, and walking remain viable options for future residents who also choose to work in Wheaton. The transit mode share might be expected to decrease somewhat but be replaced by a higher walk and bike mode share.

Table 2: Comparison of Non-Auto Driver Mode Share Goals for Select Montgomery County Planning Areas

Area	Commuter Survey Data	Survey Data Year	Master Plan Recommendation
Bethesda	36%	2009	37%
Germantown			25%
Silver Spring	48%	2008	50%
Wheaton	13%	2007	30%
White Flint	26%	2005	50%

TMD Data (Commuter Survey Data) for Wheaton is based on 34 responses. Commuter survey data for Silver Spring represents mode share for the peak hour of commuting only. In 2008, 36% of survey respondents commuted during the peak hour. Data reflects travel behavior for surveyed employees working in each area.

Transit Services

Transit and the Vision for Wheaton

Transit plays a key role in Wheaton now and will play an even greater role in the future. The Plan calls for transit-oriented development within the CBD so that residents, workers, and visitors have easy access to Metrorail and an expanded network of bus service that is more frequent and takes less time than the current service.

Existing Conditions

The existing transit service has the following characteristics.

- A number of major bus routes pass through or end at Wheaton connecting with Metrorail and the major crossroads (see Table 3).
- Around 5,000 people board Metrorail at the Wheaton Station on a typical weekday. About 25 percent of them walk to the station and another 15 percent arrive by bus. In comparison, 50 percent of Silver Spring Metrorail passengers walk to that station and 30 percent arrive by bus. The percentages for the Takoma Park station are about the same as Silver Spring.
- Between 2000 and 2007, traffic volumes on the state highways in Wheaton actually decreased somewhat while the Metrorail ridership at the Glenmont, Wheaton, and Forest Glen stations grew an annual rate of between two to three percent.
- 52percent of Wheaton residents commute via public transit, almost three times the County average.
- The primary bus route in the Plan area, the Metrobus Q line, provides frequent service between Silver Spring and Shady Grove via Wheaton and Rockville. The line carries about 10,500 passengers on a typical weekday. It has recently undergone service changes designed to provide additional capacity and improved reliability along the Veirs Mill Road segment, which has the highest ridership and a planned Bus Rapid Transit corridor (see discussion below).

Table 3: Bus Routes in the Wheaton Plan Area

Route	Peak Period Frequency (Min.)	Peak Period Service Only?	Major Roadways Served
Ride On Routes			
Ride On 7	30	Yes	University Blvd
Ride On 8	30	No	University Blvd
Ride On 9	20	No	Arcola / University
Ride On 31	30	Yes	Arcola
Ride On 34	**15-30**	**No**	**University / Veirs Mill Rd.**
Ride On 37	30	Yes	Georgia Ave.
Ride On 38	**20**	**No**	**Veirs Mill Rd.**
Ride On 48	**20-30**	**No**	**Veirs Mill Rd**
Metrobus Routes			
Metrobus C2	20	No	University Blvd.
Metrobus C4	**20**	**No**	**Veirs Mill Rd / University Blvd**
Metrobus Q1,Q2,Q4,Q5,Q6	**10**	**No**	**Veirs Mill Rd. / Georgia Ave.**
Metrobus Y5	30	Yes	Georgia Ave.
Metrobus Y7	30	Yes	Georgia Ave.
Metrobus Y8	30	No	Georgia Ave.
Metrobus Y9	30	No	Georgia Ave.

Note: Routes in bold can use dedicated bus lanes on Veirs Mill Road. During peak period, frequencies average about 15 buses an hour or one every four minutes.

In addition to the Metrobus Q line, there are other major bus routes in the Wheaton plan area. The Metrobus Y line serves the Georgia Avenue corridor. This line provides 15 minute service during peak periods and carries about 7,500 passengers on a typical weekday (see Map 1).

Wheaton is also served by eight Ride-On routes as noted Table 3. The major Ride-On routes and their estimated weekday ridership are:

Route 9 – Wheaton to Silver Spring – 1,300 weekday riders
Route 34 – Aspen Hill to Bethesda – 1,900 weekday riders
Route 38 – Montgomery Mall to Wheaton – 1,400 weekday riders
Route 48 – Rockville to Wheaton – 1,900 weekday riders

Map 1: Wheaton Area Bus Service

Source: WMATA Website

Metrorail Capacity

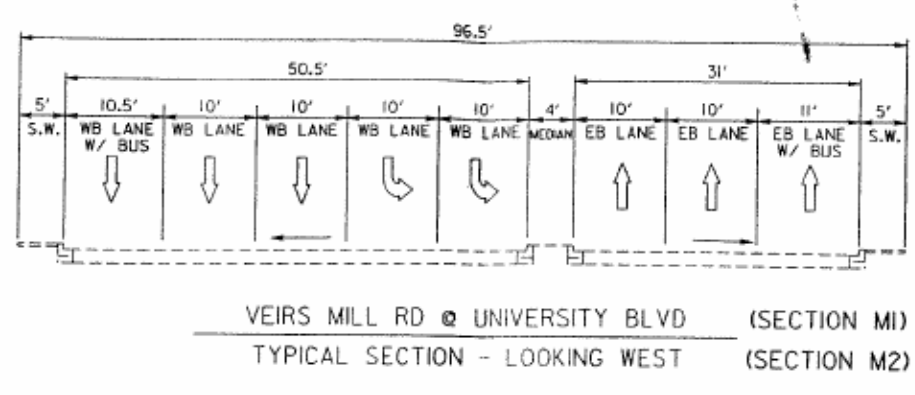
Metrorail trains serving Wheaton run every five minutes in the peak period. Each train has either six or eight cars and each car holds about 120 passengers (including standees). The current line capacity (number of trains times number of cars times passengers per car) ranges from 8,640 to 11,520 per hour during peak periods. There is plenty of line capacity on Metrorail to accommodate additional growth around the Wheaton station.

There have been concerns raised about peak loads in downtown Washington and WMATA has established a capital investment program to address this issue. The long range travel forecasts and WMATA's *Station Access and Capacity Study* indicate that there will be sufficient Red Line capacity to accommodate growth planned in Wheaton. This finding, however, assumes funding is available for rail car replacement and fleet expansion, as well as the elimination of the turn back at Silver Spring, a service improvement that requires more train "sets" during peak periods. While funding the improvements is not necessarily an issue for Wheaton specifically, it is important for the Metrorail system.

Other Transit Topics

Wheaton is the center point of two planned Bus Rapid Transit (BRT) corridors—the Veirs Mill Road BRT from Rockville to Wheaton and the University Boulevard BRT from Wheaton to the Takoma/Langley Park Transit Center. Lane restrictions (right turn only except for buses) have been implemented along several sections of Veirs Mill Road to enhance bus travel time and schedule reliability as an initial step in advancing bus priority treatments within the corridor.

Figure 2: Typical Section for Veirs Mill Road, Veirs Mill Road BRT Study



Source: Veirs Mill Road Facility Planning Study, August 2005

DOT completed a Phase One Facility Planning Study in 2005 on the Veirs Mill Road BRT. It examined two alternatives that included segments where the buses operate in dedicated lanes, on the frontage road, or in lanes shared with other vehicular traffic. The study's concept plan for Veirs Mill Road in the Plan area included only one approach—operation in shared lanes—due to the CBD's right-of-way constraints and high levels of left-turning traffic. A typical section along this segment is shown in Figure 2. The Sector Plan retains the study's proposal to provide a "diamond lane" treatment for buses, bicyclists, and right-turns on Veirs Mill Road within the CBD.

The *Countywide Bus Rapid Transit Study* began in March 2010 to examine the feasibility of establishing a network of BRT corridors that would help provide travel times competitive, or better, than auto travel in selected high-demand corridors. Details for the preferred typical sections for both the Veirs Mills Road and the University Boulevard corridors will likely be part of this study effort.

The County has also included funds in the most recent CIP to advance preliminary engineering of the Veirs Mill BRT. Given past and current policy directives, it is reasonable to assume that the Veirs Mill Road corridor between Wheaton and Rockville is the highest priority for implementing BRT on an existing major arterial (state) roadway in the County. The second priority is the Georgia Avenue Busway (Olney to Glenmont) followed by the University Boulevard (Wheaton to Takoma/Langley) bus enhancements. These priorities could change with the completion of the Countywide BRT study.

BRT and the Wheaton Plan Design Elements

Planning for BRT on Veirs Mill Road has focused on locating the transitway in outside lanes rather than the median. The Sector Plan retains the curb-lane emphasis based on existing right-of-way constraints, high left-turning volumes, and anticipated land use patterns. The curb-lane emphasis is further supported by the service road along Veirs Mill Road north of the Wheaton CBD and need for additional right of way to operate in the median.

Table 4: General Transit Capacity and Quality Guidelines

Treatment	Minimum One-Way Peak Hour Bus Volumes	Minimum One-Way Peak Hour Passenger Volumes	Related Land Use and Transportation Factors
Bus streets or malls	80-100	3,200-4,000	Commercially oriented frontage.
CBD curb bus lanes, main street	50-80	2,000-3,200	Commercially oriented frontage.
Curb bus lanes, normal flow	30-40	1,200-1,600	At least 2 lanes available for other traffic in same direction.
Median bus lanes	60-90	2,400-3,600	At least 2 lanes available for other traffic in same direction; ability to separate vehicular turn conflicts from buses.
Contraflow bus lanes, short segments	20-30	800-1,200	Allow buses to proceed on normal route, turnaround, or bypass congestion on bridge approach.
Contraflow bus lanes, extended	40-60	1,600-2,400	At least 2 lanes available for other traffic in opposite direction. Signal spacing greater than 500-ft (150-m) intervals.

Source: Transit Capacity and Quality of Service Manual

General guidelines about approaches to BRT priority treatment from the *Transit Capacity and Quality of Service Manual* are presented in Table 4. Current and planned bus volumes along Veirs Mill Road are consistent with those for curb lane priority treatment.

Street, Pedestrian, and Bicycle Network

The Plan's transportation recommendations were developed through analysis based on two important network characteristics, connectivity and layered networks, which have also been explored in progressive transportation network plans elsewhere in the United States. If it's easier to

walk and bike on a well connected street network, fewer people may drive, reducing greenhouse gas emissions (GHG) and vehicle miles traveled (VMT), two of Montgomery County's growth policy goals.

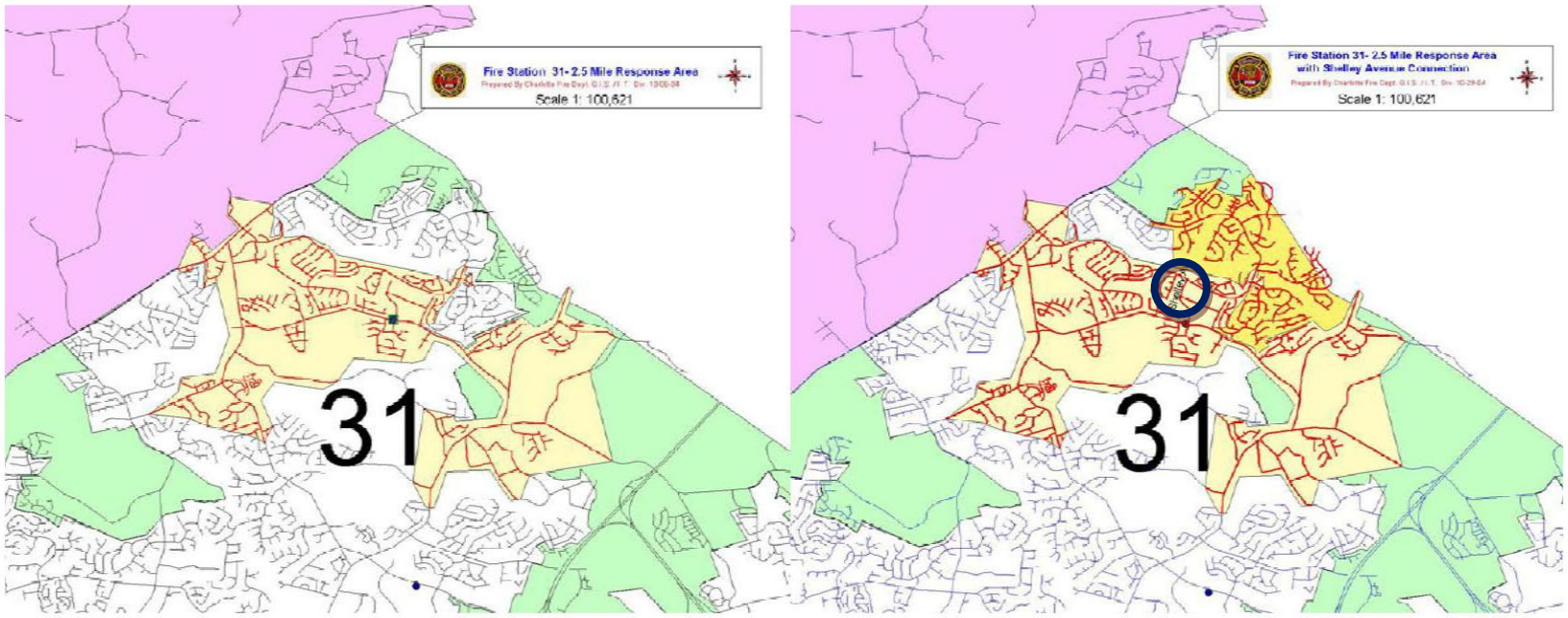
Connectivity

Connectivity measures the ability of a transportation network to effectively link people with places, services, and activities. On a micro scale, like the Wheaton Plan area, connectivity is a useful measure of the ability to circulate around and among the neighborhoods. Easy and logical access to transit, retail and grocery stores, work locations, and recreation sites are all characteristics of connected neighborhoods and business districts.

A number of connectivity measures have been used nationally, including walkability scoring, route directness, link/intersection ratios and intersection density. Plan analysis used both the link/intersection (link/node) and intersection density measures.

Increased connectivity has also been shown to improve walkability and reduce emergency response time. In Charlotte, North Carolina, city staff

Map 3: Charlotte Fire Department Connectivity Ciomparisons



Note: Image on right shows larger service area that could be achieved if street segment marked by circle is completed. Source: City of Charlotte, North Carolina, "*Effect of Connectivity on Fire Station Service Area & Capital Facilities Planning*", presentation to ITE Midwestern District Annual Meeting, June 18, 2009 (charmeck.org)

worked with the Charlotte Fire Department to identify locations where emergency response times could be improved for some stations with small service areas largely due to discontinuous street networks. By applying connectivity index methods (described below), staff determined that one additional link in the roadway network could dramatically improve connectivity and emergency response for one of its fire stations. Map 3 illustrates the expanded service area resulting from this network change. In the image on the left, a missing connection limits response area, while the image on the right depicts the expanded service area that would result from adding one road segment. The City's fiscal research analysis of this change shows that maintenance of a well connected street grid is not only important for low response times, but also as a means to reduce the need for additional fire stations.

Wheaton's mix of urban gridded streets and cul de sac neighborhoods has constrained transportation options in Wheaton for vehicles, including emergency response teams. As Wheaton continues to grow, the impact of missing street connections may play a greater role in the cost and nature of Wheaton's development.

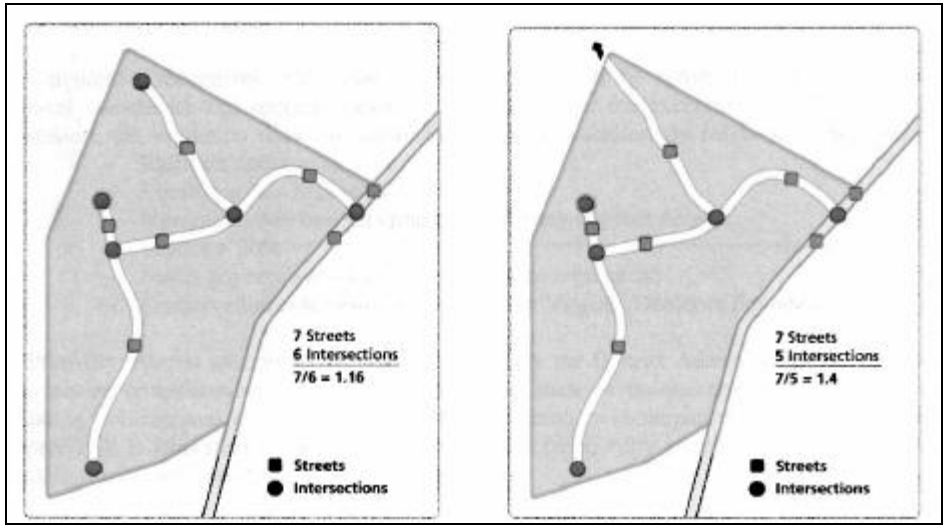
Link/Node Analysis

The ratio between street segments and nodes (or intersections) can be used to describe the robustness of a transportation network. Street segments that can connect pedestrians and vehicles to public facilities, arterial streets, employment centers, or commercial developments are highly desired in this connectivity measurement paradigm. A well connected network therefore lacks single use streets that end in cul-de-sacs or dead ends.

The Virginia Department of Transportation (VDOT) analyzes development using the link/node ratio called SSAR (Secondary Street Acceptance Requirements), which was adopted by the Commonwealth's General Assembly in 2007. SSAR's goal is to encourage the development community to build public streets that add capacity and enhanced connections. VDOT has set a SSAR link/node ratio of 1.6 for Compact Areas such as the Wheaton Sector Plan area.

The SSAR method defines a link as a street segment between two intersections. Nodes or intersections include cul-de-sacs themselves. Map 4 illustrates how a street network that provides connections to adjacent communities has a higher street/intersection ratio than on with only internal circulation.

Map 4: Examples of SSAR Connectivity
Source: VDOT, www.virginiadot.org/projects/ssar



Analysis of Wheaton revealed 208 existing street segments and 158 intersections or nodes. This yields a link/node ratio of 1.32. A number of new links could be included in the Plan, but their addition would also add a few intersections. It is therefore likely that this Plan will produce only an incremental change in the link/node ratio for Wheaton. As shown in Table 5, the public street network planned for White Flint has substantially increased the connectivity index by breaking up "superblocks."

Table 5: Link Node Analysis Comparisons for Select Montgomery County Study Areas

	Silver Spring	Wheaton		White Flint	
	Existing	Existing	Plan/Proposed	Existing	Plan/Proposed
Street Segments (Links)	143	208	212	39	132
Intersections (Nodes)	102	158	160	28	80
Link/Node Ratio	**1.40**	**1.32**	**1.33**	**1.39**	**1.65**
VDOT Recommendations	1.60	1.60	1.60	1.60	1.60
Planning Area Above/Below Std.	-0.20	-0.28	-0.28	-0.21	0.05

Connectivity in a community like Wheaton can be constrained or complicated by two factors.

- One objective in Wheaton is to increase connections using privately maintained streets that might be open to pedestrians and bicyclists only. The Plan envisions this treatment as appropriate for portions of Hickerson Drive and for new connections in the Kensington Heights area. These connections increase walkability, but have not been included in a public street connectivity index.

- Several "paper streets" exist in Wheaton where connections were once proposed but have not been built, primarily due to concerns by nearby residents about cut-through traffic. This Plan recommends retaining that right-of-way but only making selected, strategic connections with the full participation of affected communities.

Another approach to connectivity measurement is measuring intersections per square mile. This is the approach that the United States Green Building Council (USGBC) endorses in its LEED ND program (the extension of LEED green building design standards to neighborhood development). The LEED ND intersection density procedure includes guidelines for the type of intersections that should be excluded from calculations. Specifically, "If one must enter and exit an area through the same intersection, such an intersection and intersections beyond that point are not counted; intersections leading only to cul-de-sac are also not counted." (Source: USGBC LEED ND Guidelines, Neighborhood Pattern and Design Prerequisite 3: Connected and Open Community, http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148)

Applying the LEED ND intersection measure to Wheaton showed 117 intersections. Proposed street segments would increase that to 129. Both of these counts, however, are well below the recommended standard of 300 intersections per square mile,

Table 6: Intersection Analysis for Select Montgomery County Study Areas

	Silver Spring	Wheaton		White Flint	
	Existing	Existing	Plan/Proposed	Existing	Plan/Proposed
USGBC Intersections	72	91	101	23	80
Area (Sq. Miles)	0.59	0.78	0.78	0.67	0.67
Intersections/Sq. Mile	**122**	**117**	**129**	**34**	**119**
USGBC LEED ND Standard (Mimimum)	300	300	300	300	300
Planning Area Above/Below Std.	-178	-183	-171	-266	-181

which is the minimum number required to obtain a point under the LEED ND standards. Four hundred or more intersections per square mile is the desired benchmark of a well connected street network. Results from analysis of Wheaton, White Flint, and the Silver Spring CBD are displayed in Table 6.

Layered Street Networks

The layered street concept is an application of network system planning, rather than a pure hierarchical approach to roadway classification. Just as neighborhood streets are designed to accommodate large moving trucks only on an infrequent basis, arterial streets are designed to routinely accommodate a large number of vehicles of all types and sizes. One of the Plan's goals is to reexamine the road use priorities and ensure that the allocation correctly matches current mobility goals within the County.

The layered street concept is not meant to exclude one or more modes from given roadway connections, but rather to ensure that all modes can circulate within an area without significant barriers, and navigate through an area. Wheaton's street network is well suited to support diverse travel modes due to its modified grid form, but continued network refinements will help ensure that all modes are adequately accommodated on the network. Map 5 compares traditional and dendritic street networks. Wheaton's network lies between these two patterns.

A drawback of the dendritic system's limited non-arterial through connections is that it forces different users to share the arterial roadways. In Wheaton for example, University Boulevard, Georgia Avenue, and Veirs Mill Road often provide the only option to move around the planning area. The use of arterials for through movements generally works well for autos and commercial traffic, but it forces other modes to share these same busy roadways and can force allocation of excessive rights of way to ensure that all modes are accommodated appropriately.

Modifications to the Plan's proposed network are incremental but will help update existing network layers and continue the transformation of Wheaton from an auto-oriented suburban retail center, which began with the introduction of Metrorail in 1990.

Map 5: Comparison of Two Common Network Street Systems

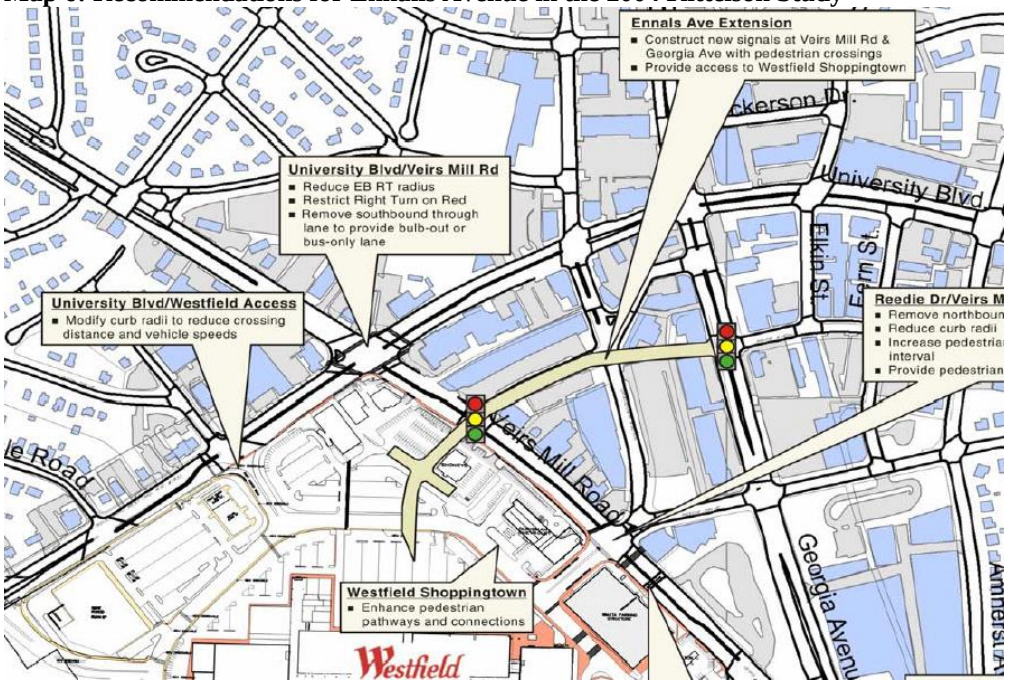
Traditional Grid Street Network, Landsdale, PA — Dendritic Road System, Montgomeryville, PA

Source: Smart Mobility, Inc.

Specific recommendations to implement layered, transit-oriented, streets in Wheaton include:

- realigning Ennalls Avenue to connect with Price Street and extending to the Wheaton Plaza Ring Road, creating a viable alternative to University Boulevard for internal east-west trips within the CBD
- extending bikeways, including bike lanes on Amherst Avenue, to provide a connected circulation pattern within and through Wheaton
- transforming Georgia Avenue, University Boulevard, and Veirs Mill Road into urban boulevards, enhancing the pedestrian experience on these roadways and balancing their current role accommodating through trips.

Map 6: Recommendations for Ennalls Avenue in the 2004 Kittelson Study



Source: Wheaton Metro Station Area Pedestrian Safety Evaluation, November 2004, Kittelson & Associates, Inc.

Network Options for Wheaton

Recent Wheaton studies considered improvements to the street network. Two of these analyses shaped the Plan's recommendations: the *Wheaton Metro Station Pedestrian Area Safety Evaluation* (Kittelson & Associates, Inc., November 2004), and the *Urban Land Institute Technical Assistance Panel* (ULI TAP, September 2009).

The Kittelson study made network recommendations, namely extending Ennalls Avenue into the Wheaton Plaza site and realigning it to meet with Price Avenue (Map 6).

The ULI TAP study took a broader approach than Kittelson and recommended a number of new street connections addressing all travel modes. As shown on Map 7, recommendations include new links to the mall site along Ennalls and from the south linking to Georgia Avenue and the surrounding neighborhoods, a road network within the mall site (as redevelopment occurs), and streets breaking up larger blocks adjacent to the CBD.

Map 7: Proposed Wheaton Road Network, ULI TAP - September 2009

Source: Urban Land Institute, Technical Assistance Panel, September 2009

Recommendations for the Master Planned Street Network

The Wheaton Sector Plan recommends a street network that includes major highways, business streets, and primary residential streets and that builds on both the connectivity and layered street concepts (Map 8). Local, non-master planned streets are also recommended to complement the County road network.

These streets are defined by Section 49-31 of the County Code.

- A Major Highway is meant nearly exclusively for through movement of vehicles at a moderate speed. Access must be primarily from grade-separated interchanges and at-grade intersections with public roads, although driveway access is acceptable in urban and denser suburban settings (subject to approval by the Maryland State Highway Administration, Engineering Access Permits Division).
- A Business District Street is meant for circulation in commercial and mixed-use zones.
- A Primary Residential Street is meant primarily for circulation in residential zones, although some through traffic is expected.

The Plan's recommendations reflect the County's 2006 Road Code (Chapter 49) as well as the corresponding design standards (Executive Regulation 31-08) developed in 2007 and 2008. The design standards provide context-sensitive street designs that reflect and complement the planned adjacent land uses with standards appropriate for rural, suburban, and urban areas.

The framework of Wheaton's proposed street network was developed in relation to the three State highways, Veirs Mill (MD 586), Georgia Avenue (MD 97), and University Boulevard (MD 193). These roads are the primary connections to and from Kensington, Rockville, Takoma/Langley, up-County, Silver Spring, and Washington, D.C.

Average annual daily traffic on these roads has been measured at:

- Georgia Avenue: 60,000 south of CBD; 40,000 between Veirs Mill Road and University Boulevard; 50,000 north of Arcola Avenue
- Veirs Mill Road: Greater than 25,000 north of University Boulevard; 25,000 at Reedie Drive
- University Boulevard: 20,000 east of Veirs Mill Road; 30,000 from Veirs Mill Road to Georgia Avenue; 30,000 east of Georgia Avenue

Veirs Mill, University Boulevard, and Georgia Avenue all performed well in LATR analysis at Plan build-out with critical lane volume (CLV) counts below the standard of 1,800 in nearly all locations. More detail about the LATR analysis is in the Transportation Land Use Balance section.

The Plan recommends transforming these roads into boulevards, recognizing a need for improved connections across each road and an enhanced experience for pedestrians and cyclists. Large blocks along the State roads should be shortened where possible with a context sensitive mix of new master planned road connections, local streets, and pedestrian connections. Cross sections should generally incorporate a 120-foot right-of-way with six travel lanes, a planted median, space for bicycles and off-peak parking in wide outside lanes (14 feet), and wide sidewalks with planted buffer strips.

Each of the State highways will have a slightly different function in the Wheaton street network.

- Veirs Mill Road is expected to accommodate a bus rapid transit (BRT) system and will therefore need dedicated lanes for rapid bus service. To minimize the right-of-way for Veirs Mill Road, the BRT should function in wide outside lanes through the Plan area, with no on-street parking.
- University Boulevard should accommodate off-peak, on-street parking and bicycles in wide outside lanes west of Amherst Avenue. East of Amherst Avenue the master planned dual bikeway should be accommodated in a 150-foot right-of-way. Bike lanes should be implemented and connect to planned lanes on Amherst Avenue. East of Amherst Avenue, farther from the CBD, the bike lanes are a priority over on street parking.
- Georgia Avenue should operate with three travel lanes in each direction and wide outside lanes for bicycles and off-peak, on-street parking where feasible. Wide sidewalks and planted medians should be implemented to enhance the pedestrian experience in the CBD.

Most of Wheaton's streets are business streets. Interior circulation in Wheaton will be greatly enhanced with additional east-west connectivity in the Core. In accordance with connectivity goals, and following the recommendations of Kittelson & Associates in 2004, the street grid should be modified to:

- realign Ennalls Avenue between Grandview Avenue and Georgia Avenue to align with Price Avenue
- extend Ennalls Avenue to connect the Wheaton Plaza Ring Road to its current terminus at Georgia Avenue
- extend Price Avenue as a public business street between Fern Street and Amherst Avenue.

Previous plans for Wheaton's street widths vary from 70 to 84 feet. This Plan's recommendations make the streets consistent with current County Road Code design standards. The Plan recommends a business street network of roadways with 70-foot rights-of-way with space for on-street parking and two travel lanes. Target speeds (similar to posted speed limits) should be kept to 25 miles per hour to accommodate cyclists and enhance pedestrian safety. Expanding the business street network on the mall site before any redevelopment is appropriate to connect the mall with surrounding neighborhoods.

Connections from Wheaton's neighborhoods to the Core are mainly via Primary Residential streets. A number of these streets are not continuous, with either mid-block interruptions, or breaks between adjacent blocks. Although the street network functions, internal driveways and alleys often complement missing links for residential access. In some locations, such as along Blueridge Avenue east of Amherst Avenue, a shared use bicycle/pedestrian pathway provides a connection for non-motorized travel. The Plan recognizes that there is no one size fits all approach to these neighborhood connections. Based on field observations, input through public and interagency meetings, and Countywide connectivity goals, the Plan recommends preserving or enhancing context-sensitive connections at locations where a Primary Residential street is not continuous.

The Plan recommends completing two previously approved street connections:

- Kensington Boulevard between East Avenue and Veirs Mill Road. This connection could help break up the large block on the south side of Veirs Mill Road between the Plan boundary and University Boulevard. In addition, the link may provide access to the Lindsay Ford site should it redevelop
- the unbuilt portion of Bucknell Drive between Prichard Road and Windham Lane. The 1990 Plan did not recommend completing this segment but it has value to the street network. The lack of a connection to University Boulevard (except southbound) limits through traffic use. The existing pedestrian connection is a sidewalk, not wide enough for cyclists and pedestrians. A street connection here would improve roadway function for autos and bicycles as well as for pedestrians.

Although all connections are important to the network, and could play a significant role in emergency response, the Plan recommends that several pedestrian and cyclist connections be preserved throughout the life of this plan. Appropriate connections at these locations should be evaluated as development occurs.

- Blueridge Drive between Amherst Avenue and Bucknell Drive and between Taber Street and Nairn Road. These segments function well as connections to the Sligo Creek trail system and provide pedestrian and bicycle access to the northern portions of the Wheaton CBD. Redevelopment of the WTOP antenna site, recommended in the 1990 Plan, is not anticipated in this Plan, diminishing the need for a northern access to and from the site. Path widths on these segments are consistent with current shared use path standards and are well used.
- Reedie Drive between Dodson Lane and University Boulevard. Although this segment of Reedie Drive is not included in the current Master Plan of Highways, and is on private property, the connection is used by pedestrians and cyclists via a sidewalk that links the end of Reedie Drive with a driveway owned by the Har Tzeon Agudath Achim Synagogue. Realigning Reedie Drive could provide a direct connection between University Boulevard and the Wheaton CBD, and is convenient way to walk to Metro from the neighborhoods to the north and east. This connection was proposed as a feasible link for bus use, particularly bus rapid transit as it may be developed on University Boulevard. Staff explored the conflict between vehicular use of this site and use of the adjacent school and day care facilities with the property owners and adjacent community representatives. In this case, staff found that the value of the current institutional property use outweighed the value of formalizing a through transportation connection for either autos or buses in this Plan. Pedestrian and bicycle improvements to the existing path, although not encouraged or endorsed by the Synagogue (save making the path ADA compliant), could be done but would require County funds.

Other connections were examined but are not recommended at this time.

- Rose Lane between Reedie Drive and University Boulevard (complete unbuilt portion and upgrade to Business Street).
- Full two-way operation of Bucknell Drive between Reedie Drive and University Boulevard. The existing connection at this location is a necessary access for residential units along University Boulevard and is accessible to pedestrians and cyclists.
- Southern connections from the Wheaton Plaza Ring Road to McComas Avenue. Although these connections would reduce trip length from residential neighborhoods south and southeast of the mall site, implementing them would face environmental challenges from steep grades, the Wheaton Plaza parking lots, and stream locations. There is little community support for vehicular connections to the mall at this time. Existing bicycle/pedestrian paths link the neighborhoods to the mall site at Torrance Drive and the public school between Douglas Avenue and the Wheaton Plaza Ring Road.

These streets are not needed to achieve a balance between land use and transportation as measured by current growth policy mobility standards. All local street connections face adjacent community opposition based on concerns about increased traffic volumes. These street connections would provide value in improving the Wheaton area's connectivity index performance as described above. The full right-of-way for these streets should be retained in the event that future planning or regulatory policies are enacted that place a higher value on connectivity.

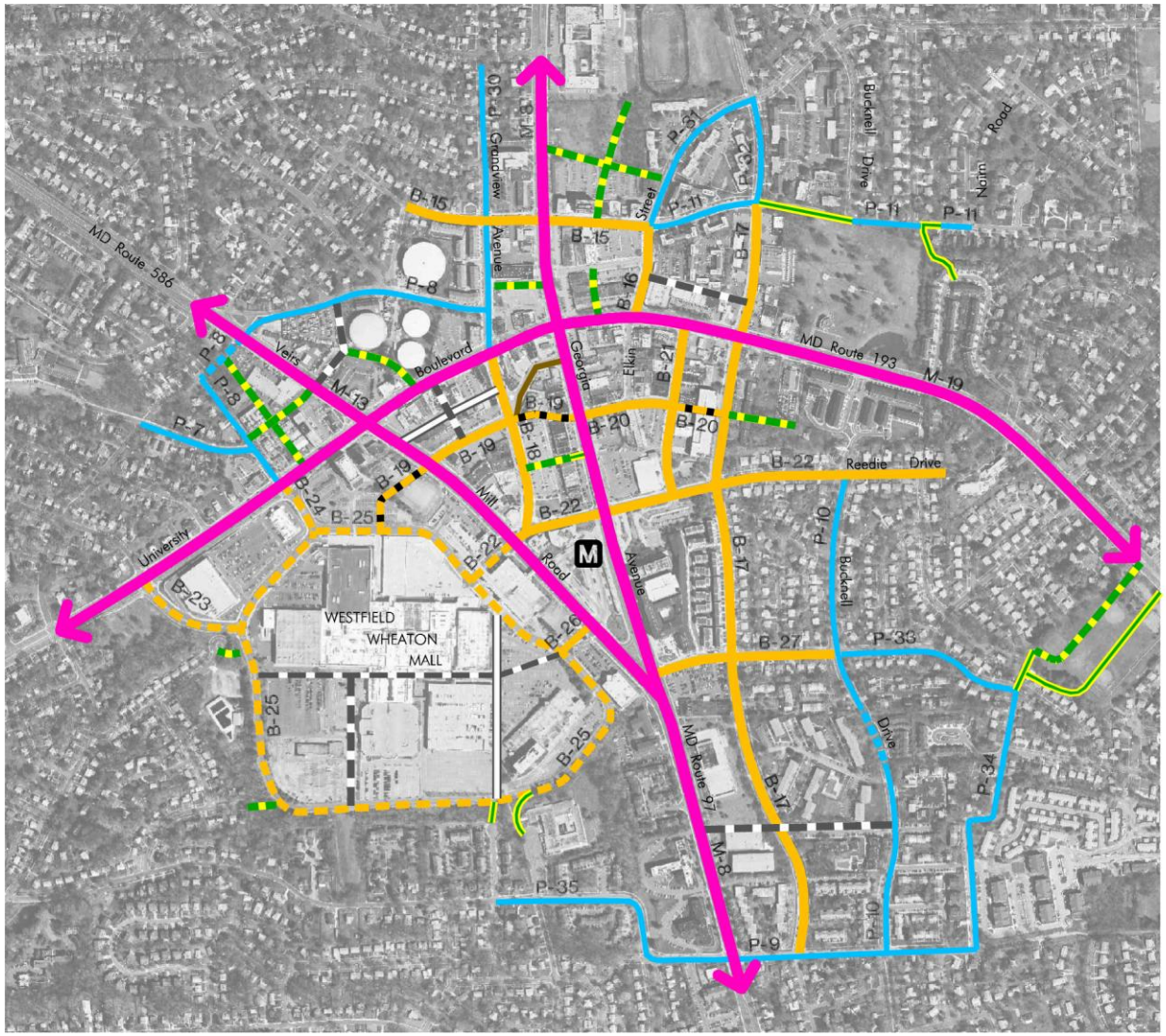
Concerns about congestion at State highway intersections in the CBD were expressed throughout the planning process. One-way operation of Veirs Mill Road and Georgia Avenue was examined (separately) as a way to alleviate congestion. A possible one-way road pair including Veirs Mill Road could include a southbound roadway running just behind a developed edge of Veirs Mill Road on the mall site tying back into Veirs Mill Road just north of University Boulevard and to Georgia Avenue just south of the existing Veirs Mill Road/Georgia Avenue intersection. In this scenario the existing Veirs Mill Road would be used exclusively for northbound travel. In another scenario, Georgia Avenue was conceived as a northbound roadway in a one-way pair with Grandview Avenue as the southbound component, tying into Veirs Mill Road at Reedie Drive and back into Georgia Avenue north of Blueridge Avenue.

Neither of these one-way pairs was pursued after preliminary discussions because model results indicated that the existing network could accommodate the redevelopment of Wheaton. Although congestion would increase at intersections in the CBD with planned density, the State highway intersections within the CBD did not have the highest CLVs relative to their congestion standards. Also, the environmental (higher auto speeds during off-peak travel), economic (difficulty of wayfinding, particularly for transit users and retail customers), and implementation challenges (requiring a substantial and coordinated capital improvement effort) were found to be adverse. In summary, adverse impacts of one-way couplets were found too great to continue with further analysis of these one-way options.

Local streets are appropriate where large blocks exist or redevelopment is likely to occur and street alignments could be determined by development scenarios. The Plan recommends several private, local streets:

- a grid of streets on the Wheaton Plaza site cutting across the Ring Road
- an east-west connection from Georgia Avenue to Bucknell Drive north of the self-storage facility
- a north-south road from Veirs Mill Road north to Kensington Boulevard just west of the water tanks
- an east-west connection from Elkin Street to Amherst Avenue just behind the existing retail strip along University Boulevard
- and a grid of streets on the block bounded by University Boulevard, Veirs Mill Road, Ennalls Avenue, and Grandview Avenue.

Map 8: Existing and Proposed Street Network



Wheaton Metro Station

Street Classifications

- Major Highway Existing
- Residential Primary Existing
- Residential Primary Proposed
- Business Existing
- Business Proposed (New Designation)
- Business Proposed
- Abandon

Local Streets ✳

- Existing
- Proposed

Pedestrian Connections

- Existing
- Proposed

✳ Local street connections are not designated in the Master Plan of Highways. Proposed local street and pedestrian rights-of-way and alignment to be determined during the development review process.

0 800 ft

Bicycle and Pedestrian System

Bicycle Priority Area

Three state highways among a mix of County roads make Wheaton a good candidate for designation as a Bicycle-Pedestrian Priority Area (Map 9). This designation, part of the County Executive's 2008 Pedestrian Safety Initiative, has been suggested for several County master plan areas including White Flint, Germantown, and Kensington. In accordance with Access 2000 legislation passed in 1995, this designation would require the State to prioritize pedestrian and bicycle improvements. State agreement is required before the designation can be implemented.

One of the Plan's goals is to transform Veirs Mil Road (MD 586), University Boulevard (MD 193) and Georgia Avenue (MD 97) into boulevards with enhanced medians, wide sidewalks, improved pedestrian crossings and off-peak parking where feasible. Bicycle-Pedestrian Priority Area designation will enable complementary bicycle treatment of these three roadways and help implement important Countywide bikeways on University Boulevard and Georgia Avenue. Veirs Mill Road is also recommended for a shared lane bicycle facility. Enhanced bicycle treatments would allow these three roadways to serve as major spokes in the County bikeway system providing the same east-west, north-south and CBD-to-CBD (e.g. Wheaton to Rockville) connections that the roads already offer to vehicles. One of the most important bikeways in Wheaton is the dual bikeway (DB-5) on University Boulevard. This facility will link Wheaton and Takoma/Langley Park and will include a shared use path along its length. State cooperation on implementing this bikeway link is essential.

The Bicycle-Pedestrian Priority Area designation would also support the Planning Board's recommendations for bicycle and pedestrian improvements when commenting on the Mandatory Referral, of State highway projects within this area.

Bicycle Connections to Parks

Wheaton is near three of the most heavily used park/trail facilities in Montgomery County: the Sligo Creek Park and Trail, Wheaton Regional Park, and Rock Creek Park and Trail. Although connections between the Wheaton CBD and these facilities exist, one of the Plan's goals is to connect these bikeways and make them more visible and easy to use. Similar to the proposed changes to the road network, a basic framework of trail connections exists, so current proposals add connections and trail segments.

- A new connection southeast from the mall site to Faulkner Place along Drumm Avenue will provide more direct access to points south and west, including the Rock Creek Trail.
- Existing pathways along Blueridge Drive should be preserved and enhanced (although right of way for road connections should not be abandoned) since they link the Wheaton CBD with the Sligo Creek Trail and Wheaton Regional Park.
- The southern connection to Sligo Creek Trail along Windham Lane currently exists, but should be enhanced with signage directing users to and from Wheaton.

Through Trips

Wheaton's crossroads location makes it an activity node for automobiles and bus routes as well as County bicycle routes. Wheaton is the western terminus of a major east-west bikeway (DB-5) which begins in Takoma Park. This bikeway was initially planned to terminate at Georgia Avenue. This planning process analyzed that terminus and, finding no clear connections to other bike routes, recommends moving it to Amherst Avenue. Amherst Avenue is an existing north-south bikeway and is part of the County's Georgia Avenue corridor—a key north-south route. Relocating the dual bikeway on University Boulevard onto Reedie Drive was also studied, but could not be implemented due to the lack of support for a connection between Reedie Drive and University Boulevard.

Cyclists would like a more direct through route to Rockville along Veirs Mill Road. Current routes travel a winding network of roads from Wheaton to the northeast. Although bus rapid transit is likely to have preference in the outside lanes on Veirs Mill Road, it may be suitable to locate a bike route along Veirs Mill Road within the Wheaton Plan area since bus speeds will be reduced in the CBD. This shared diamond lane concept is similar to the 9th Street diamond lane in Washington DC.

Connections from the CBD to the southeast are currently accommodated on an indirect route south through Wheaton Plaza to Plyers Mill Road via a series of road segments. This Plan proposes a more direct route from the mall site along Faulkner Place to Drumm Avenue and Plyers Mill Road. The connection from the Wheaton Plaza Ring Road does not currently exist, and would need to be built. Although Faulkner Place is near the Ring Road, it is at a much lower elevation. This connection will require some attention during the design phase, and may ultimately not tie into the Ring Road directly adjacent to Faulkner Place if ramping is required.

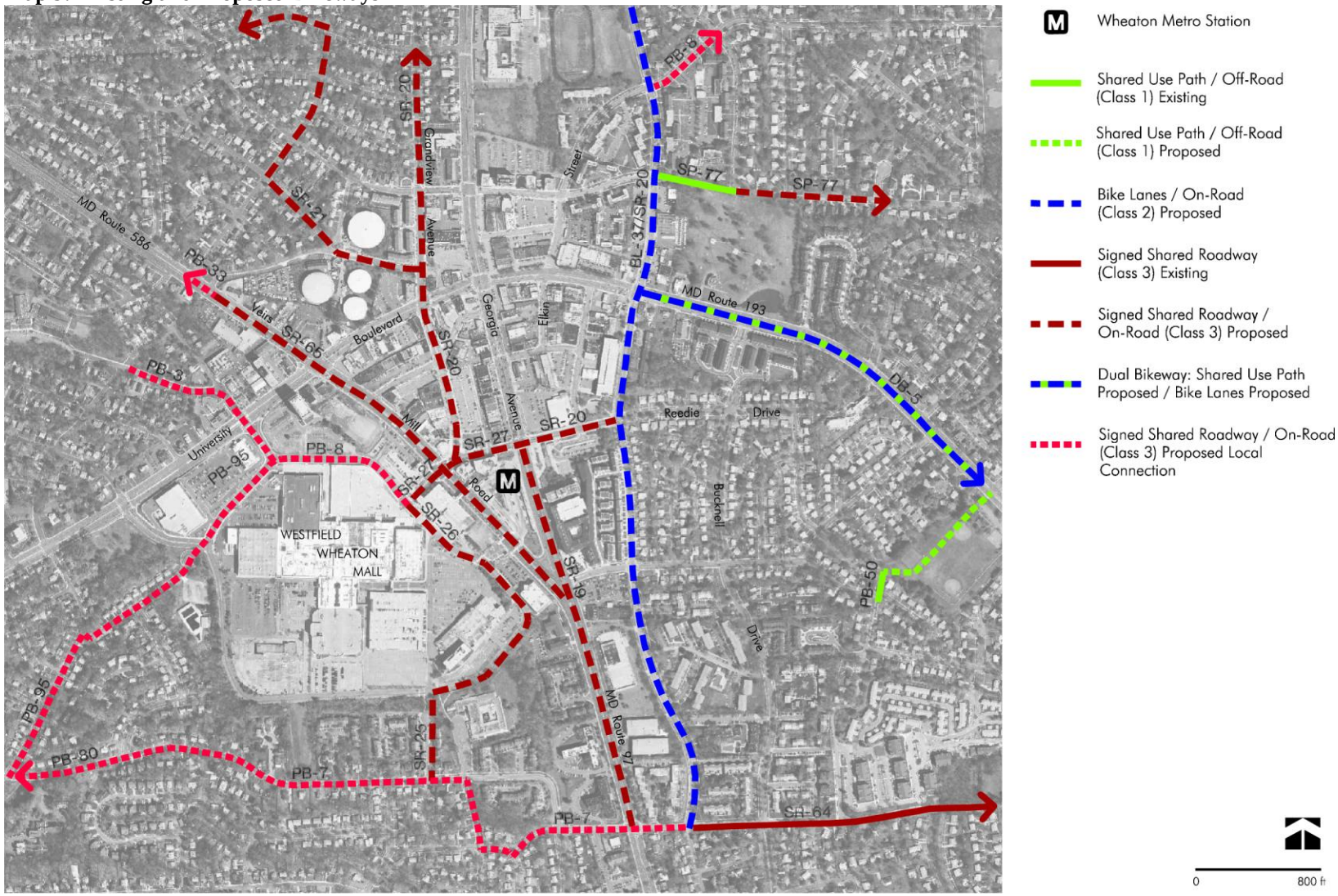
To provide the Georgia Avenue through bicyclist with another option the Plan recommends using the existing wide curb-to-curb distances south of Prichard Road, and also tying into both the Arcola Avenue bike lanes and the Windham Lane-Sligo Creek Trail access bikeway. Amherst Avenue would become the main north-south bicycle facility in Wheaton, also tying into the park connections on Blueridge Avenue and shared roadway bikeways on Elkin Street.

Metro Access

The Wheaton Metro Station is accessed from either side of Georgia Avenue just south of Reedie Drive. The 1990 Plan recommended an 84-foot wide right-of-way for Reedie Drive, and although that Plan also recommends a bikeway on Reedie Drive, it does not specify the type of facility. Reedie Drive is an important Countywide bicycle network link because it serves as the east-west connection between the Grandview Avenue and Amherst Avenue portions of the Georgia Avenue corridor bikeway. Bus traffic on Reedie Drive (from Amherst Avenue to the Metro station) and the steep grade to and from Georgia Avenue provide a challenging location for cyclists. Given these challenges and the importance of visible connections to Metro, bike lanes would be most suitable for this location. Recent and current redevelopment along Reedie Drive between Georgia Avenue and Amherst Avenue has not moved the existing curb lines, therefore restricting the pavement width to roughly 48 feet, too narrow for a four-lane cross section and bike lanes. As a result of the curb restrictions, wide outside lanes may provide the best viable accommodation for cyclists on Reedie Drive. This Plan recommends that wide outside lanes be incorporated into the cross section of Reedie

Drive when the road is reconstructed with redevelopment of the Safeway site and any redevelopment on Parking Lot 13 or the Wheaton Metro station.

Map 9: Existing and Proposed Bikeways



The Pedestrian Network

The Plan proposes improving the pedestrian experience in Wheaton. The connectivity concepts described for vehicular mobility in Wheaton also relate to pedestrian circulation. New street connections on Bucknell Drive and Kensington Boulevard will provide upgraded sidewalks and, in the case of Kensington Boulevard, a connection that does not include stairs. Many sections of streetscape in Wheaton are currently without trees in planting strips, a less than ideal pedestrian environment. The boulevard treatment recommended for Major Highways will provide streetscape elements including new sidewalks, benches, and trees.

Block Lengths

Shorter block lengths are will also improve connectivity and the pedestrian experience. Realigning Ennalls Avenue and extending it into the Wheaton Plaza site will reduce block lengths on the west side of Veirs Mill Road between University Boulevard and the Reedie Drive mall entrance (from 450 feet to roughly 200 feet), and on Georgia Avenue between Ennalls Avenue to Reedie Drive (from 400 feet to 200 feet). Recommended local street connections from Veirs Mill Road (north side) to Kensington Boulevard will enable similar block length reductions. The proposed local road from Georgia Avenue to Bucknell Drive just north of the self storage buildings will greatly reduce the length of some of the longest blocks in Wheaton. The distance between Windham Lane and Prichard Road is currently 750 feet, but would be cut in half with the proposed local roadway. See Map 8 for proposed local roads and new connections.

State Highway Crossings

The major highways in Wheaton provide bus and auto connections to other parts of the County but are also a challenge for pedestrians. Field observations noted that a five minute walk north from the Wheaton Metro Station is made difficult at University Boulevard. From the western gateway along Veirs Mill Road, pedestrians must wait for traffic traveling without signals north of University Boulevard. On Georgia Avenue, crossings at Reedie Drive face heavy turning volumes during peak periods that reduce pedestrian comfort. The Wheaton area has seen a notable number of traffic incidents involving pedestrians (as noted in the *Wheaton Metro Station Area Pedestrian Safety* Evaluation, Kittelson & Associates, Inc., November 2004). To address these concerns, the Plan recommends better crossing pedestrian options with shorter block lengths (which also discourage mid-block crossings), new street connections that help disperse traffic volumes, and improved streetscape amenities, particularly along State highways.

Pedestrian Circulation

Some unconnected streets in Wheaton have become pedestrians and cyclist routes. Although several of these paths are currently in use by pedestrians, many are not maintained and are deteriorating. In lieu of multimodal connections, these shared use paths connect neighborhood pedestrians to the CBD. The Plan proposes a network of pedestrian connections within the CBD as well, to confirm existing pathways and to enhance pedestrian circulation overall. Connections to the Wheaton Plaza site from neighborhood streets are of particular importance.

Pedestrian and Bicyclist Access and Safety

Pedestrian and bicyclist access and safety in the Wheaton area will be pursued through:

- design standards to implement the County's Road Code
- design guidelines for private sector development
- zoning requirements for bicycle parking and other amenities
- engineering, education, and enforcement programs under the County Executive's Pedestrian Safety Initiative.

In 2007, the County Council amended Chapter 49 of the County Code to improve pedestrian and bicycle accommodation, stormwater management, and context-sensitive design for roads. In December 2008, the Council approved Executive Regulation 31-08 AM, Context Sensitive Road Design Standards, which specify design standards and processes for implementing the revised road construction code, most notably typical cross section standards, required stormwater management criteria for capturing runoff within the right-of-way, and target speeds and street tree placement. Continued effort is needed to complete the Road Code's range of street and intersection design standards that will promote pedestrian and bicyclist access and safety.

The Planning Board will approve design guidelines that will guide development to improve pedestrian access, comfort, and safety by:

- orienting buildings to maximize pedestrian accessibility
- design treatments for sidewalks and driveways
- street lighting.

Zoning will reinforce planning for pedestrians by requiring:

- pedestrian-oriented activity at street level with uses such as retail and restaurants
- safety-oriented environmental design including clearly marked sidewalks and crosswalks
- street trees providing canopy and landscaping on all streets, and street furniture such as benches, trash receptacles, and planters
- continuous, direct, and convenient connections to transit stations for pedestrians and bicyclists.

As public and private sector projects are implemented, all agencies need to elevate pedestrian and bicycle access and safety considerations in their review of design and operational elements, including:

- maximum curb radii of 30 feet
- signals evaluated periodically to ensure adequate pedestrian timing
- maximum crosswalk lengths of 60 feet between pedestrian refuges
- accessible bus stop locations at or near marked crosswalks
- signing and marking per the *Maryland Manual on Uniform Traffic Control Devices*, including marked crosswalks at all approaches to signalized intersections and eliminating lane markings across intersections

- street lighting designed to improve the pedestrian visibility at levels specified by the Illuminating Engineering Society of North America
- mixed-use streets and pedestrian walkways and alleys designed using Crime Prevention Through Environmental Design criteria.

Transportation System Policies

Parking Strategies

The Wheaton Parking Lot District (PLD) maintains five surface lots and one garage structure for public parking in the Wheaton CBD. These public facilities complement a WMATA-owned and operated parking structure adjacent to the Metrorail station. The balance of parking in Wheaton is approximately 400 metered on-street parking spaces within the Wheaton Parking District, numerous surface lots serving office and strip retail uses, and large parking lots (including two parking decks) at Wheaton Plaza (Map 10).

Two present day observations are important when considering future location and use of parking lots and structures. First, all existing lots and garages except Lot 14 are within ¼ mile of the Metrorail station. The area around the station, namely the CBD, is therefore generally well-served. Second, the lots operate at near capacity (i.e., approaching 85 percent) but garages are below capacity (Table 7).
The overall parking strategy must support the Plan's vision.

Table 7: Existing Parking Supply and Charges

Wheaton Public Parking Summary	
Garage spaces	628
Lot spaces	427
On-Street spaces	409
Total spaces	1,464
Long-term spaces	853
Short-term spaces	561
Handicap spaces	36
Long-term hourly rate	$0.50
Short-term hourly rate	$0.50
Monthly permit	$95.00

Source: Montgomery County DOT (website).

The PLD works in CBDs by providing, controlling, pricing, and locating supply to support commercial tenants and help the County meet a number of objectives—street activation, less cruising for spaces, increased transit mode share, less surface parking, more shared parking, and support for complementary TDM policies.

The "all-in or all-out nature" of the PLD administration through an ad valorem tax is somewhat counterintuitive to attracting reinvestment in areas like Wheaton. There could be stages of development where small to medium size businesses might benefit from an approach that provides a credit for on-site parking (not exceeding an established maximum) in cases where the site is not near a Metro or an existing public lot of some minimum size. Conversely it might make sense to waive any minimum requirement (and therefore the tax) for small or medium size businesses close to a Metrorail station.

In Wheaton, the County's RFQ is intended to leverage the land value a increase the parking revenue base, hold the parking operating costs relatively stable, and provide enough parking spaces to accommodate the associated development plus projected need for public parking for some period of time (10-15 years minimum).

It is important that the PLD retain control over supply, location, and pricing for both structured and on-street parking. It is also important to continue the priority for adequate and convenient short term, on- and off-street parking. Also, it may be useful to maintain a minimum number of spaces in freestanding public garages, especially during periods of higher than normal reinvestment or where the location helps further public objectives like parking for Metro, libraries, regional centers, concert venues, etc.

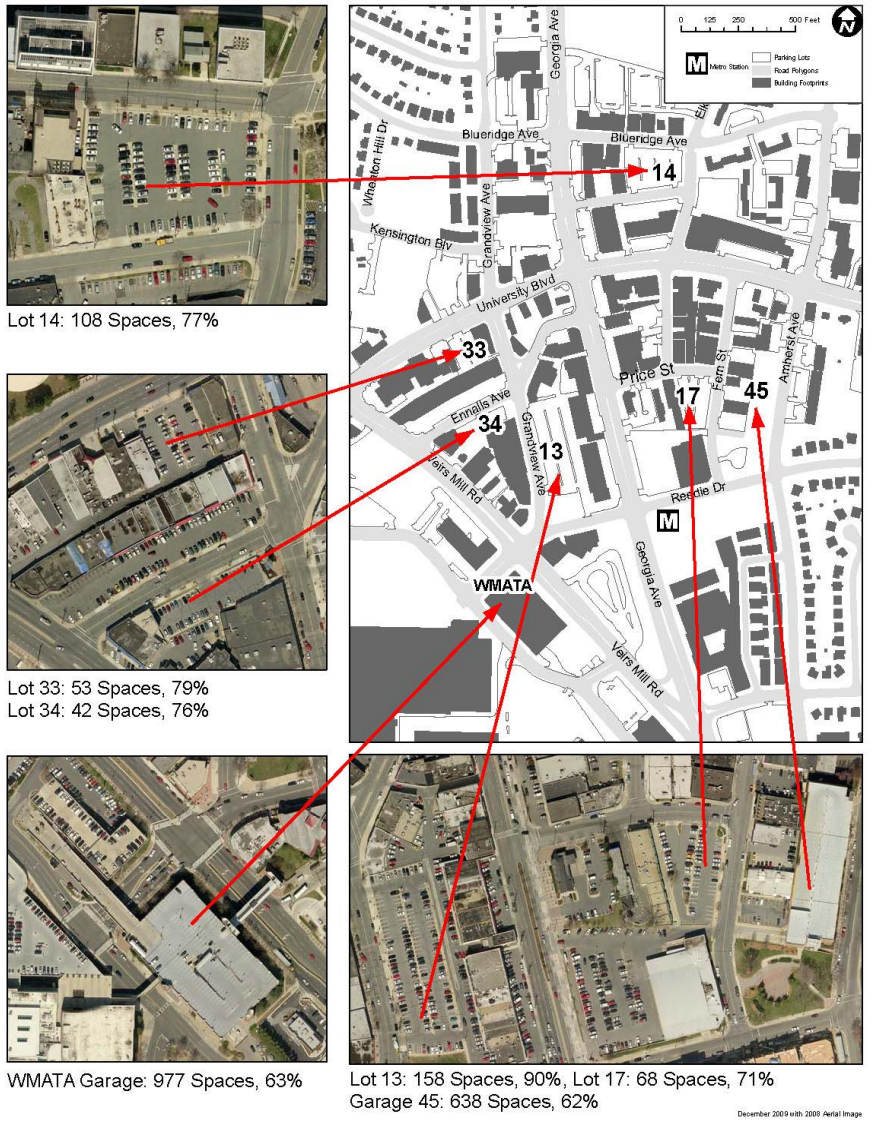
In general, key components of an overall parking strategy might include:

- supporting local business with enough on-street short term parking
- providing convenient short term spaces in any structured parking
- continuing to actively monitor and adjust supply and price to support the Plan's vision. (Excess capacity in an evolving CBD with a strong transit infrastructure is to be expected and could help with the transition.)

Parking Demand

An estimate of the number of long term spaces needed under the low and high development scenarios is presented in Table 8. It assumes that 30 percent of employees in the Plan area will arrive at work by some means other than as an automobile

Map 10: Public Parking Facilities in Wheaton and Use Rates



Source: Utilization rates and parking data: Wheaton Parking Study 2001 (ACTS), graphic by MNCPPC

driver and that 30 percent of the resulting need for spaces would be provided by the PLD.

Table 8: Estimated Parking Demand

Wheaton Low Scenario

Commercial Land Use Type	Total Planned Square Footage	Assumed Square Feet Per Job	Number of Jobs Generated	Demand for Weekday Long-Term Parking Spaces	Estimated Public Provision (30% of Total Need)
Office	1,540,000	225	6,844	4,791	1,437
Retail	2,490,000	400	6,225	4,358	1,307
Industrial	77,600	450	172	121	36
Other	356,000	500	712	498	150
Total	**4,460,000**		**13,954**	**9,768**	**2,930**

Wheaton High Scenario

Commercial Land Use Type	Total Planned Square Footage	Assumed Square Feet Per Job	Number of Jobs Generated	Demand for Weekday Long-Term Parking Spaces	Estimated Public Provision (30% of Total Need)
Office	4,860,000	225	21,600	15,120	4,536
Retail	2,390,000	400	5,975	4,183	1,255
Industrial	57,600	450	128	90	27
Other	359,000	500	718	503	151
Total	**7,670,000**		**28,421**	**19,895**	**5,968**

Transportation Land Use Balance

The Wheaton Sector Plan transportation analyses reflect the procedural guidance established by the County Council's growth policy. This guidance is described below, followed by additional description of regional transportation and land use assumptions and a brief summary of the local land use scenarios analyzed.

Measures of Effectiveness

Analysis of the Plan's recommended development and its impact on the transportation network uses three measures:

- an area-wide mobility analysis indicates the degree to which the land use and transportation scenarios provide an appropriate balance between land use and transportation per current County policies
- an intersection congestion analysis indicates the degree to which land use or transportation scenarios affect congestion hot-spots within the Wheaton Sector Plan area
- a cordon line analysis demonstrates the relative effects of vehicles generated by alternative local land use scenarios as compared to through travel.

The first two measures are elements of the County's Growth Policy, called Policy Area Mobility Review (PAMR) and Local Area Transportation Review (LATR. Detailed background information on these analyses as applied under current policy is available at www.montgomeryplanning.org.

Policy Area Mobility Review

PAMR measures transportation system adequacy by comparing Relative Transit Mobility and Relative Arterial Mobility for each of the County's 21 policy areas. PAMR helps implement the Adequate Public Facilities Ordinance (APFO) by forecasting the County's pipeline of approved development and near-term transportation system improvements for which funding is committed during the next four years.

Since the early 1980s, every master plan has considered the balance between land use and transportation by assessing area-wide conditions forecasted for end-state conditions of the plan. Policy Area Mobility Review (PAMR) is the current measure of area-wide transportation adequacy, introduced into the County Growth Policy in 2007. It is similar to the Policy Area Transportation Review measure that was an element of the Growth Policy from 1982 to 2003.

PAMR continues a long-standing County policy that higher levels of roadway congestion are appropriate in areas with higher quality transit service. This policy provides multimodal equity across the County and facilitates the development of pedestrian-oriented, rather than auto-oriented, improvements in Metro Station Policy Areas.

Relative transit mobility, defined as the relative speed by which journey to work trips can be made by transit as opposed to by auto, is based on the Transit/Auto Travel Time level of service concept in the 2003 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 transit trip takes more than an hour longer than a single-occupant auto trip.

Relative arterial mobility, defined as the relative speed by which auto trips move during peak congestion periods as compared to the free-flow speed, 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, from A to F. For a trip along an urban street that has a free-flow speed (generally akin to posted speed) of 40 miles per hour, LOS A conditions exist when the actual travel speed is at least 34 miles per hour, 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 miles per hour.

This review of policy areas has been part of the Annual Growth Policy since 1982. During that time, the Average Congestion Index (ACI) has also been used in the development of master plans to determine whether or not the Plan's recommended end-state land use and transportation are in balance. Master plan areas typically address roadway capacity needs by intersection improvements rather than roadway widening. Therefore, the AGP process has evaluated them in conjunction with the surrounding policy area.

The Wheaton Sector Plan area is located within the Kensington/Wheaton Policy Area. Table 9 shows the forecasted PAMR conditions for all County policy areas for 2030 assuming the Plan's high development scenario. Table 10 summarizes the supporting travel data for this scenario, including vehicle miles of travel (VMT) and vehicle hours of travel (VHT) for both free-flow and congested conditions.

Given the assumptions of the high scenario the Kensington/Wheaton Policy Area is forecasted to operate at:

- a Relative Transit Mobility of 85 percent (LOS B – between 75 percent and 100 percent)
- a Relative Arterial Mobility of 42 percent (LOS D – between 40 percent and 55 percent).

The current Growth Policy requires that all policy areas have a Relative Arterial Mobility of at least 40 percent, or LOS D conditions, regardless of the level of transit service provided. The PAMR results meet this threshold and from a policy perspective, the Plan can be considered to be in balance.

The assessment of policy area conditions in Tables 10 and 11 reflect the upper bounds of the scenarios tested for the Wheaton Sector Plan Area in combination with year 2030 Round 7.1 demographic forecasts for the remainder of the Washington metropolitan region. The tested development levels are beyond that anticipated by the 2030 forecast for the study area. Therefore, while the exhibits are appropriately labeled with a horizon year of 2030, staff does not expect that the full master plan yield for any of the Policy Areas will be achieved by the year 2030. Table 12 summarizes year 2005 PAMR conditions by policy area for comparison purposes.

The Plan also recognizes the Wheaton's proximity to the White Flint and Kensington Sector Plan areas. For that reason, an additional 22,000 employees and 8,000 households above the 2030 Round 7.1 Cooperative Forecast were assumed for future development located within the White Flint Sector Plan area – reflecting the land use recommendations of that Plan.

Table 9: Forecast (2030) PAMR for Wheaton Sector Plan

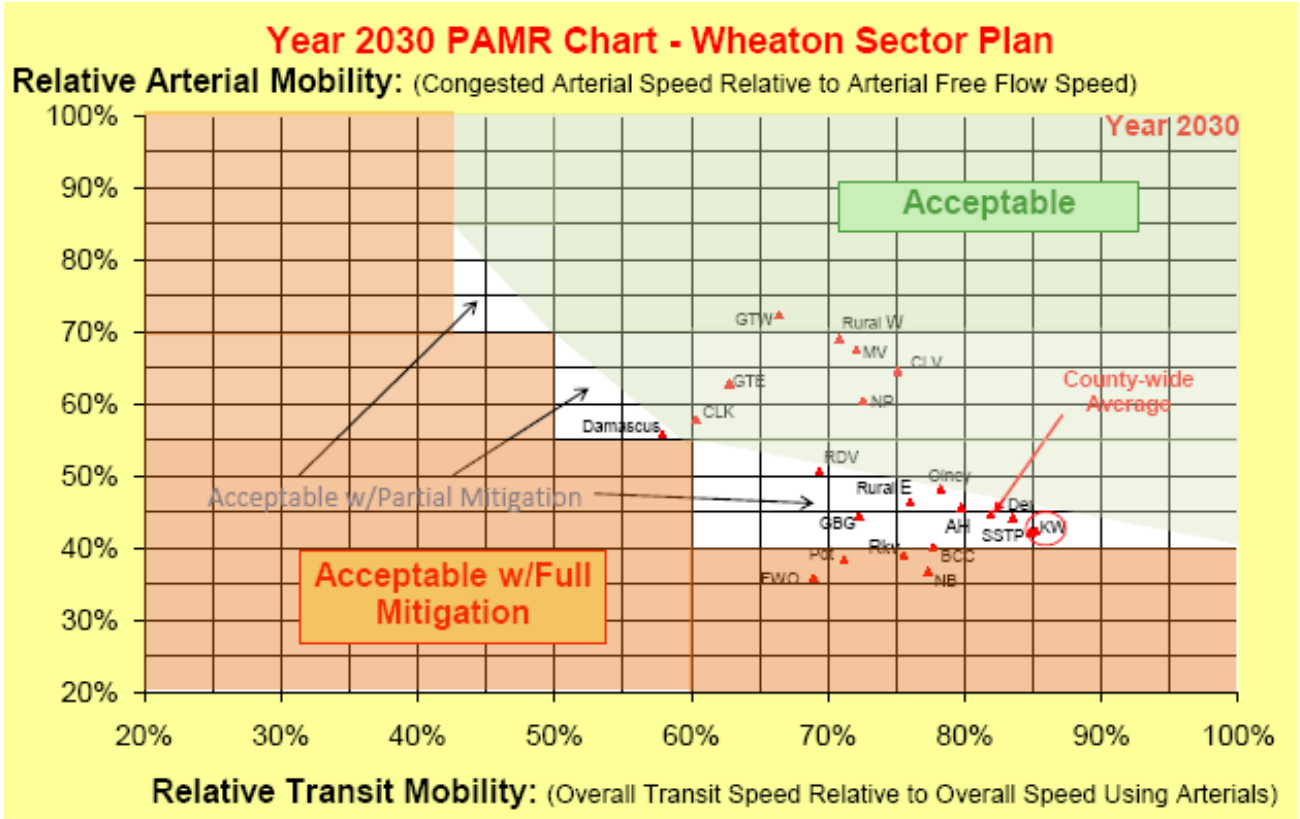


Table 10: Policy Area Mobility Review Table - 2030

Derivation of Year 2030 PAMR Results by Policy Area - Wheaton Sector Plan

			Relative Arterial Mobility				Relative Transit Mobility		
Policy Area	**VMT**	**VHT** (free-flow)	**VHT** (congested)	**Free-Flow Speeds**	**Congested Speeds**	**Relative Arterial Mobility**	**Average Arterial Travel Time**	**Average Transit Travel Time**	**Relative Transit Mobility**
Aspen Hill	192,405	5,874	12,882	32.8	14.9	46%	41.2	51.7	80%
Bethesda/Chevy Chase	399,731	15,688	39,110	25.5	10.2	40%	30.9	39.8	78%
Clarksburg	110,128	3,673	6,359	30.0	17.3	58%	38.1	63.2	60%
Cloverly	98,412	2,442	3,782	40.3	26.0	65%	44.1	58.8	75%
Damascus	92,166	2,284	4,093	40.4	22.5	56%	48.1	83.0	58%
Derwood/Shady Grove	142,859	5,086	11,518	28.1	12.4	44%	37.8	45.3	83%
Fairland/White Oak	389,527	10,282	28,736	37.9	13.6	36%	39.9	57.8	69%
Gaithersburg City	235,077	8,387	18,902	28.0	12.4	44%	35.1	48.6	72%
Germantown East	107,695	3,641	5,797	29.6	18.6	63%	36.8	58.5	63%
Germantown West	149,752	4,905	6,776	30.5	22.1	72%	37.3	56.1	66%
Kensington/Wheaton	478,759	15,069	35,598	31.8	13.4	42%	37.2	43.7	85%
Montgomery Village/Airpark	146,004	4,837	7,165	30.2	20.4	68%	41.6	57.7	72%
North Bethesda	255,117	11,282	30,693	22.6	8.3	37%	29.2	37.7	77%
North Potomac	65,971	2,364	3,919	27.9	16.8	60%	40.8	56.3	72%
Olney	170,857	4,844	10,047	35.3	17.0	48%	47.4	60.6	78%
Potomac	204,413	6,132	15,988	33.3	12.8	38%	38.4	53.9	71%
R & D Village	66,569	2,958	5,847	22.5	11.4	51%	32.0	46.1	69%
Rockville City	277,881	12,025	30,870	23.1	9.0	39%	31.9	42.3	75%
Silver Spring/Takoma Park	277,475	10,616	25,145	26.1	11.0	42%	33.3	39.3	85%
Rural East	612,620	15,620	33,717	39.2	18.2	46%	47.1	62.0	76%
Rural West	244,374	6,640	9,618	36.8	25.4	69%	47.8	67.4	71%
Montgomery County Total	**4,717,792**	**154,649**	**346,562**	**30.5**	**13.6**	**45%**	**37.9**	**46.3**	**82%**

Relative Arterial Mobility measures total PM Peak Period vehicular travel on arterial roadways within each policy area
Relative Transit Mobility measures AM Peak Period travel times for journey-to-work trips originating within each policy area
VMT = Vehicle Miles of Travel
VHT = Vehicle Hours of Travel

Table 11: Policy Area Transportation Review Table - 2005

Derivation of Year 2005 PAMR Results by Policy Area - Wheaton Sector Plan

						Relative Arterial Mobility			Relative Transit Mobility
Policy Area	**VMT**	**VHT** (free-flow)	**VHT** (congested)	**Free-Flow Speeds**	**Congested Speeds**	**Relative Arterial Mobility**	**Average Arterial Travel Time**	**Average Transit Travel Time**	**Relative Transit Mobility**
Aspen Hill	166,975	4,992	11,141	33.4	15.0	45%	36.4	54.5	67%
Bethesda/Chevy Chase	370,936	14,148	31,264	26.2	11.9	45%	25.8	36.9	70%
Clarksburg	48,985	1,341	2,038	36.5	24.0	66%	38.6	69.9	55%
Cloverly	80,280	1,954	3,398	41.1	23.6	58%	39.8	59.6	67%
Damascus	57,419	1,350	1,749	42.5	32.8	77%	43.5	95.7	45%
Derwood	128,774	4,337	8,851	29.7	14.5	49%	34.4	50.8	68%
Fairland/White Oak	332,420	9,478	18,794	35.1	17.7	50%	35.4	60.9	58%
Gaithersburg City	187,111	6,483	12,132	28.9	15.4	53%	31.5	56.4	56%
Germantown East	83,578	2,421	4,388	34.5	19.0	55%	35.4	65.6	54%
Germantown West	111,574	3,299	4,525	33.8	24.7	73%	35.7	61.5	58%
Kensington/Wheaton	410,368	12,896	26,052	31.8	15.8	50%	31.7	45.3	70%
Montgomery Village/Airpark	92,853	3,086	5,928	30.1	15.7	52%	38.3	64.9	59%
North Bethesda	194,168	7,893	17,069	24.6	11.4	46%	27.0	39.1	69%
North Potomac	53,299	1,811	2,989	29.4	17.8	61%	36.7	60.6	61%
Olney	136,864	3,972	7,727	34.5	17.7	51%	43.9	72.2	61%
Potomac	180,868	5,290	11,631	34.2	15.6	45%	33.7	54.5	62%
R & D Village	47,322	1,980	2,853	23.9	16.6	69%	30.7	52.2	59%
Rockville City	255,979	10,016	20,932	25.6	12.2	48%	29.1	47.3	62%
Silver Spring/Takoma Park	230,410	8,782	17,926	26.2	12.9	49%	27.7	40.2	69%
Rural East	449,002	11,427	20,928	39.3	21.5	55%	42.9	70.2	61%
Rural West	171,011	4,596	6,411	37.2	26.7	72%	42.7	75.6	56%
Montgomery County Total	**3,790,196**	**121,552**	**238,726**	**31.2**	**15.9**	**51%**	**34.2**	**50.7**	**67%**

Relative Arterial Mobility measures total PM Peak Period vehicular travel on arterial roadways within each policy area
Relative Transit Mobility measures AM Peak Period travel times for journey-to-work trips originating within each policy area
VMT = Vehicle Miles of Travel
VHT = Vehicle Hours of Travel

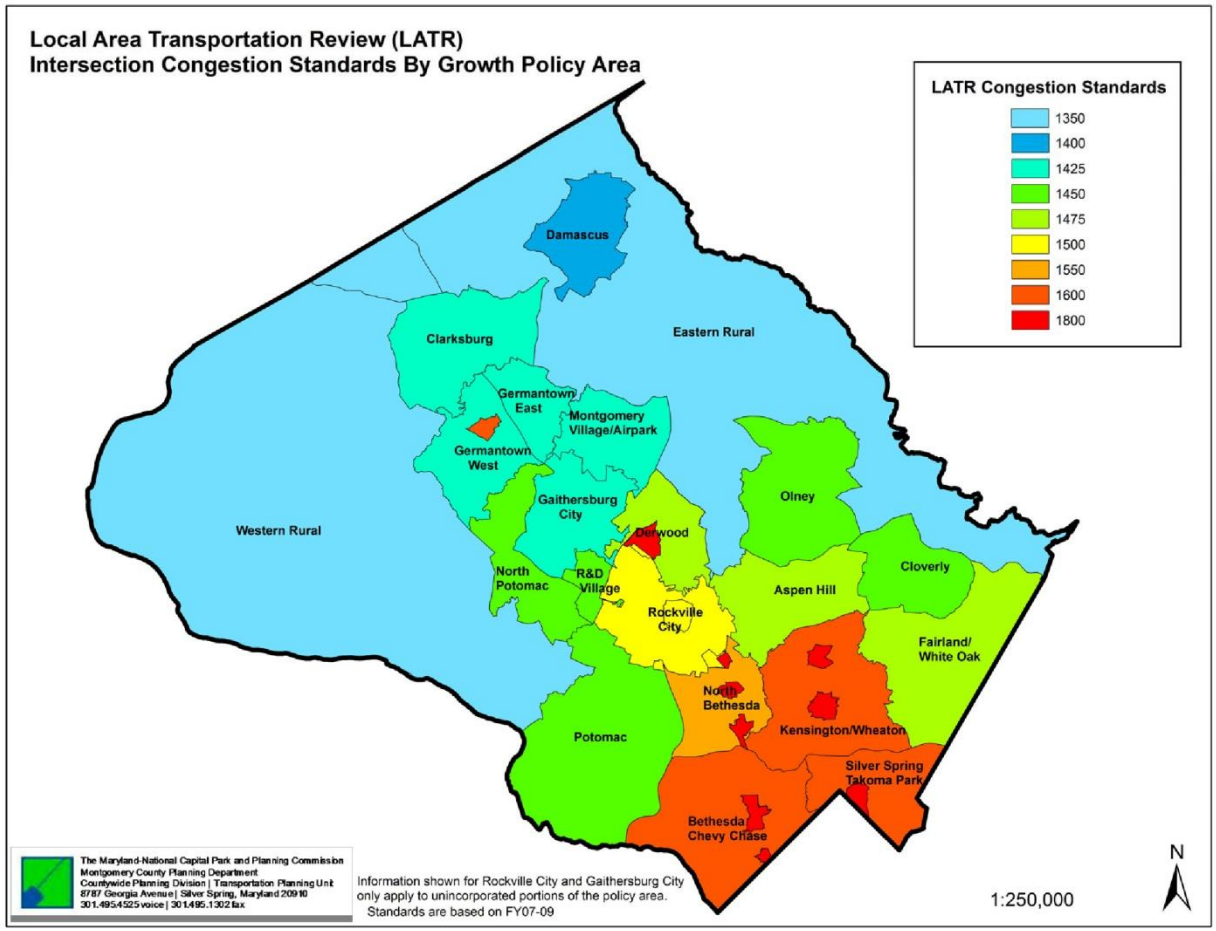
Local Area Transportation Review

The planned Wheaton street network will support continued redevelopment throughout the life of this Plan. Important factors in this network will be an emphasis on transit, street connectivity, and enhancements to pedestrian and bicycle circulation.

In the Local Area Transportation Review (LATR) process, intersection analysis was conducted by applying Critical Lane Volume (CLV) methodology to the Planning Department's LATR guidelines. Calculated CLV values were converted to a volume-to-capacity measurement, or V/C ratio, by dividing the current or forecasted CLV values by the applicable congestion standard.

Appropriate levels of congestion for each policy area, as determined in the County Growth Policy, are depicted in Map 11. Congestion levels are determined based on the degree to which alternative modes of transportation are available. In rural policy areas, where few alternatives to auto transport exist, the congestion standard is 1,350 CLV (the middle range of LOS D). In Metro Station Policy Areas, where multiple alternatives to auto transport are provided, the congestion standard is 1,800. Currently, intersections in

Map 11: Policy Area LATR Standards



the Wheaton Plan area have a congestion standard of 1,800 CLV. The Plan area is surrounded by the Kensington/Wheaton Policy Area, which has a lower CLV standard of 1,600.

Table 12 summarizes two sets of V/C results at intersections in the local Wheaton model, and compares them to existing conditions. The proposed modeled network incorporates a realigned Ennalls Avenue, which provides connection from the Wheaton Plaza Ring Road across Veirs Mill Road to Price Avenue, as well as an extension of Kensington Boulevard from East Avenue north to Veirs Mill Road. Three new intersections: Georgia Avenue at Ennalls Avenue, Veirs Mill Road at Ennalls Avenue, and Kensington Boulevard at Veirs Mill Road were included in model analysis for the proposed network only. Analysis of the high scenario also included a sensitivity test of the inclusion of Veirs Mill Bus Rapid Transit (operating in dedicated curb lanes). Results in Table 12 indicate that intersection volumes remain below their standards despite this additional capacity constraint.

Intersection results are color-coded:

- red indicates a V/C ratio exceeding the LATR standard
- orange intersections have a V/C ratio between 81 and 100 percent of the standard
- yellow intersections have a V/C ratio between 61 and 80 percent of the standard
- green intersections have a V/C ratio up to 60 percent of the standard.

Two intersections—Georgia Avenue at Plyers Mill Road and Georgia and Arcola Avenues—identified with high V/C ratios in all model runs are actually outside of the Plan area boundaries and therefore have lower LATR standards. V/C results depicted in the table below indicate that the Wheaton road network is well equipped to handle the Plan's proposed higher development densities.

Three new intersections appear in the proposed network: Georgia Avenue at Ennalls, Veirs Mill Road at Ennalls, and Kensington Boulevard at Veirs Mill Road.

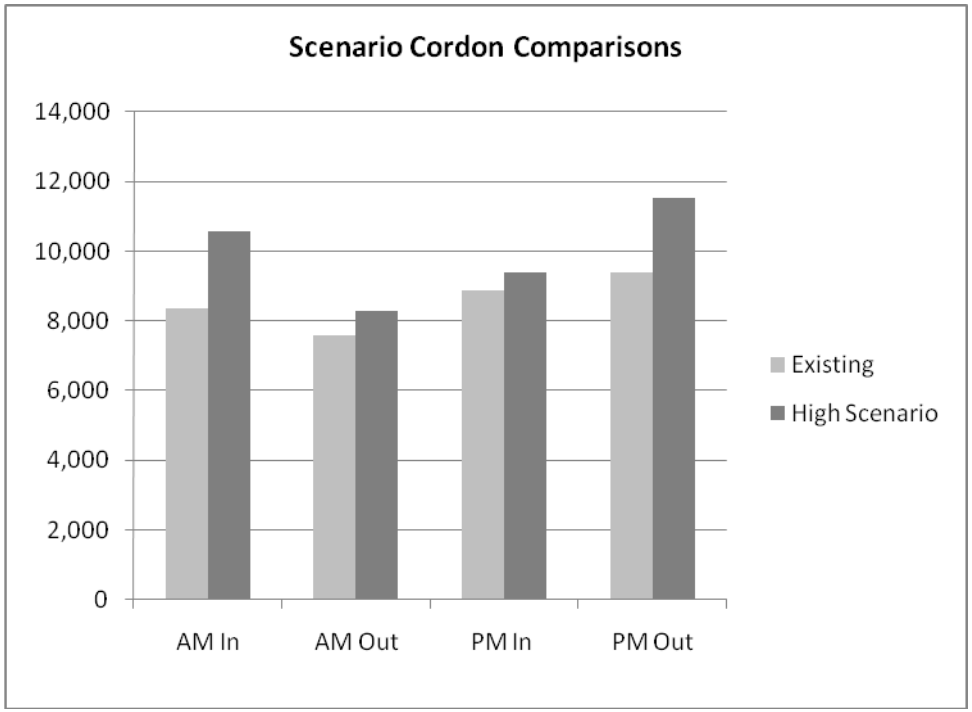
Table 12: Volume to Capacity Ratios for Wheaton Intersections

		Existing			Proposed Network/ High Density			Proposed Network and Veirs Mill BRT/High Density		
	LATR Std.	AM	PM	V/C Ratio	AM	PM	V/C Ratio	AM	PM	V/C Ratio
Georgia Avenue (MD 97) @ Plyers Mill	1600	1641	1248	1.03	1653	1394	1.03	1653	1394	1.03
Georgia Avenue (MD 97) @ Windham	1800	1211	1247	0.69	1270	1336	0.74	1270	1336	0.74
Georgia Avenue (MD 97) @ Veirs Mill (MD 586)	1800	1112	948	0.62	1499	1036	0.83	1499	1036	0.83
Georgia Avenue (MD 97) @ Reedie	1800	1032	1184	0.66	1498	1485	0.83	1498	1485	0.83
Georgia Avenue (MD 97) @ University (MD 193)	1800	1269	1171	0.71	1492	1581	0.88	1492	1581	0.88
Georgia Avenue (MD 97) @ Blueridge	1800	1114	1206	0.67	1457	1666	0.93	1457	1666	0.93
Georgia Avenue (MD 97) @ Arcola	1600	1231	1471	0.92	1443	1703	1.06	1443	1703	1.06
Veirs Mill (MD586) @ University (MD 193)	1800	1431	1451	0.81	1468	1440	0.82	1468	1654	0.92
University (MD193) @ Grandview	1800	799	1000	0.56	887	1436	0.80	887	1436	0.80
University (MD193) @ Amherst	1800	846	1060	0.59	1046	1446	0.80	1046	1446	0.80
Veirs Mill (MD586) @ Wheaton Metro	1800	565	884	0.49	842	1533	0.85	842	1533	0.85
Veirs Mill (MD586) @ Reedie	1800	836	959	0.53	1164	1342	0.75	1181	1536	0.85
University (MD193) @ East	1800	583	707	0.39	744	972	0.54	744	972	0.54
University (MD193) @ Valley View	1800	394	705	0.39	334	621	0.35	334	621	0.35
University (MD193) @ Reedie	1800	531	584	0.32	697	746	0.41	697	746	0.41
Veirs Mill Road @ Kensington	1800	N/A	N/A		1296	1321	0.73	1296	1321	0.73
Georgia Avenue (MD 97) @ Ennals	1800	N/A	N/A		1144	1577	0.88	1144	1577	0.88
Veirs Mill (MD 586) @ Ennals	1800	N/A	N/A		945	1290	0.72	1167	1486	0.83

These three intersections perform well in the proposed network with the high scenario in the AM period, although they are nearer to their congestion standards in the PM hours. New development on the Wheaton Plaza site, combined with the new connection of Ennalls to Price Avenue (and the new extension to Amherst Boulevard), influence these findings.

Cordon Line Analysis

Table 13: Draft Plan Trip Generation Comparison



The Plan's transportation infrastructure recommendations are based on the high land use scenario tested. Table 13 compares existing peak hour trips crossing into and out of the Plan area with trips that would be on the road in 2030 under the Plan's high development scenario. In both cases, the cordon line volumes include through trips and local trips generated by Wheaton plan area development. The growth in traffic reflects trips generated by new local development, as well as a reduction in through trips (additional development in Wheaton creates a market so that a higher proportion of motorists travel to, rather than through, Wheaton). The cordon line volumes also reflect the 30% non-auto driver mode share for Wheaton area employees.

Travel Demand Forecasting Process and Assumptions

The travel demand forecasting process uses three levels of analysis, described below.

The first level of analysis is TRAVEL/3, a four-step model, consisting of:

- trip generation: person trips generated by land use type and density within each TAZ
- trip distribution: person trips generated in each TAZ that travel to each of the other TAZs within the metropolitan area
- mode split: travel mode of the person trips, including single-occupant auto, multiple-occupant auto, transit, or a non-motorized mode such as walking or bicycling
- traffic assignment: roadways used for vehicular travel between TAZs.

The TRAVEL/3 model incorporates land use and transportation assumptions for the metropolitan Washington region, using the same algorithms as applied by the Metropolitan Washington Council of Governments (MWCOG) for air quality conformity analysis. Map 12 shows the relationship of Montgomery County in the regional travel demand network, featuring the coding of street network characteristics to reflect the general level of adjacent development density.

TRAVEL/3 provides system-level results that are used directly to obtain PAMR forecasts for the County's Policy Area Transportation Review. The system-level results are also used as inputs to the finer grain analytic tools described below.

The second level of analysis consists of post processing techniques applied to the TRAVEL/3 forecasts, as described in NCHRP Report 255. These techniques include refining the morning and evening peak hour forecasts to reflect a finer grain of land use and network assumptions than included in the regional model, such as the location of local streets and localized travel demand management assumptions. The NCHRP Report 255 analyses are used to produce the cordon line analyses.

The third level of analysis includes intersection congestion, using the Critical Lane Volume (CLV) methodology described in the Department's *Policy Area Mobility Review / Local Area Transportation Review Guidelines* (PAMR / LATR).
Travel /3 Forecasting Assumptions:

- A 2030 horizon year, the most distant horizon year for which forecast land use and transportation system development is available.

- Regional growth per the MWCOG Cooperative Forecasting Process.

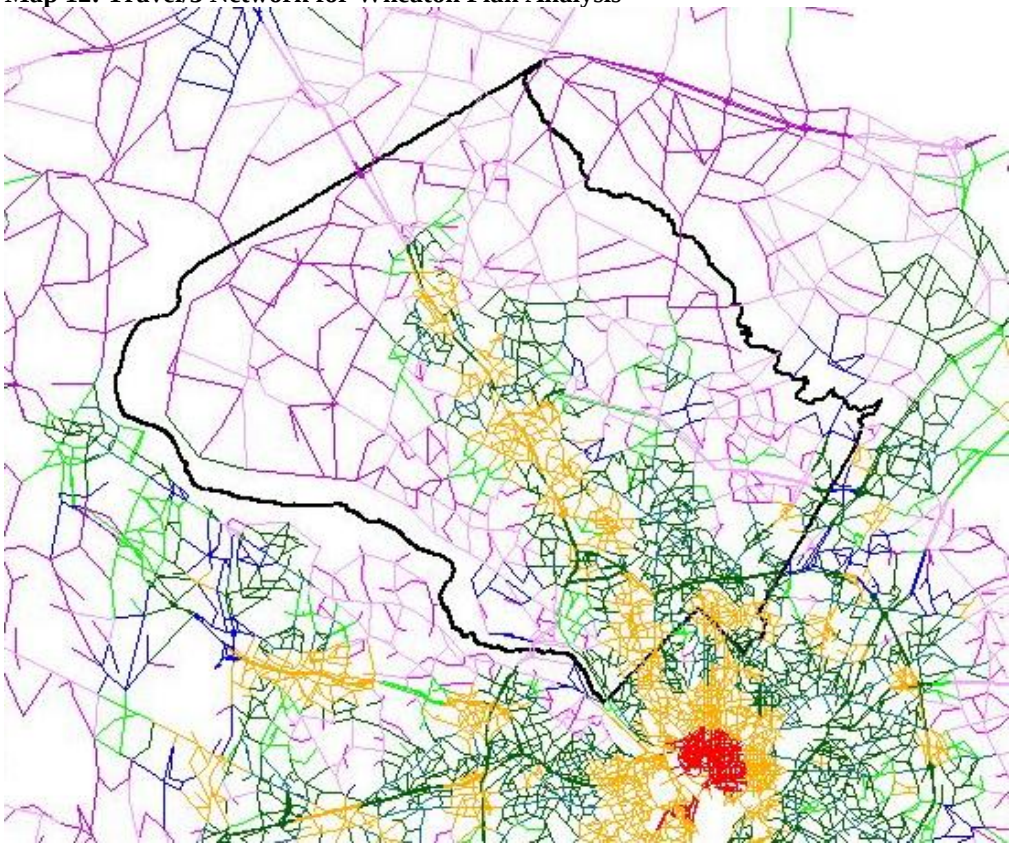
- For the Washington region, the Round 7.1 forecasts include an increase from three million jobs and 1.9 million households in 2005 to 4.2 million jobs and 2.5 million households in 2030.

- For Montgomery County, the Round 7.1 forecasts include an increase from 500,000 employees and 347,000 households in 2005 to 670,000 employees and 441,300 households in 2030. Wheaton calculations include an additional 22,000 employees and 8,000 households for development in the White Flint Sector Plan area—reflecting that Plan's current land use recommendations.

- Transportation improvements in the region's Constrained Long Range Plan (CLRP), a fiscally constrained transportation network. Notable projects assumed to be in place for the buildout of the Wheaton Plan include:

  - elimination of the WMATA turnback at Grosvenor
  - the Purple Line between Bethesda and Silver Spring
  - the Corridor Cities Transitway between Shady Grove and Clarksburg
  - the Montrose Parkway
  - the Intercounty Connector
  - widening of I-270 from I-370 to the city of Frederick.

Map 12: Travel/3 Network for Wheaton Plan Analysis



Local Area Modeling Process and Assumptions

The Department's Local Area Modeling (LAM) process uses NCHRP Report 255 techniques to both convert the TRAVEL/3 system level forecasts to intersection-level forecasts. The LAM process is then used as a pivot-point technique to reflect changes to the localized land use or transportation network, providing both cordon line and network analysis results.

The TRAVEL/3 model represents the Wheaton Plan and surrounding area as four transportation analysis zones (TAZs). The Wheaton LAM disaggregates the area within the Plan, overlapping these four TAZs into 18 subzones based on block groupings separated by major roads within the Plan area boundary.

The LAM process uses customized trip generation rates that reflect both existing conditions and future changes, considering both the land use types and changes in travel behavior. Table 14 shows the trip generation rates used in the LAM.

Table 14: Local Area Model Peak Hour Trip Generation

Land Use	Units	AM	PM
Office	1000 Square Feet	1.60	1.60
Retail	1000 Square Feet	0.70	1.70
Industrial	1000 Square Feet	1.10	1.10
Other Commercial	1000 Square Feet	1.10	1.10
Single-Family residential	Dwelling unit	0.95	1.11
Multifamily residential (garden apartment)	Dwelling unit	0.44	0.48

These trip generation rates reflect a combination of LATR rates for development similar to that envisioned for Wheaton, and were calibrated to match the observed traffic counts, considering the amount of through traffic in the roadway network so that the LAM volumes at the network cordon line are within one percent of observed count data for both morning and evening peak hours.

The trip generation rates shown in Table 14 are generally lower than those found in the Institute of Transportation Engineers (ITE) trip generation report, particularly for commercial land uses. The rates reflect the fact that ITE rates for most commercial locations do not have the transit availability and usage found in Wheaton. The difference for residential uses is not quite as high because ITE multifamily trip generation

rates do reflect the fact that most multifamily housing units have, almost by definition, sufficient density to support transit service. Finally, the retail trip generation rates in the Wheaton zones also incorporate a discount for pass-by and diverted-link trips.

Table 15: Land Use Alternatives Tested

	Existing Development	High Scenario
Dwelling Units	2,000	7,300
Commercial Square Feet	3.7 m	7.6 m

Ongoing Transportation Studies in the Wheaton Area

The transportation component of this Plan is one of several transportation planning efforts in the area. Each of these plans will play a role in the shape and function of the transportation network (Table 16).

Table 16: Transportation Planning Studies

Ongoing Studies

Name	Scope/Objective	Managing Authority	Estimated Completion Date
Wheaton Station Bus Transit and Access Needs Assessment Study	Improve site access in conjunction with joint development	WMATA/P2D Consultant Team	Summer 2010
Veirs Mill BRT	FTA NEPA level effort to advance BRT	MCDOT and MDOT under an MOU	Begin second quarter 2010, complete end of 2011
County BRT Study	Feasibility of multiple corridors as part of system	MCDOT	Late Fall/early Winter 2010
County Joint Development RFQ For Parking Lots and Other Sites	Joint development of County or WMATA owned property in CBD	Montgomery County	Partner to be selected by first quarter 2010 (tentative)
Reedie Drive Pedestrian Road Safety Audit	Improve pedestrian circulation	MCDOT/VHB consultant team	Summer 2010

Recently Completed Studies

Name	Scope/Objective	Managing Authority	Completion Date
Q2 Bus improvements	Short-term operational improvements to WMATA service	WMATA	First phase improvements - late December 2009
Wheaton Metro Station Area Pedestrian Safety	Examine pedestrian access to station from locations within CBD core	Kittelson	November 2004

Evaluation			
Regional Bus Study	Examine regional wide Metrobus and local bus service improvements	WMATA	September 2003
Station Access and Capacity Study	Identify vehicular and pedestrian access and capacity for Metrorail stations	WMATA	April 2008
Veirs Mill BRT	Phase I facility planning study	MCDOT	August 2005

Studies not Specific to Wheaton

Name	**Scope / Objective**	**Managing Authority**	**Completion Date**
Metrorail Station Area Bicycle and Pedestrian Improvement Study	Bicycle and pedestrian access, and connectivity enhancements at selected Metrorail stations	WMATA	Spring 2010
County Parking Study	Examine current County Code and policies	County DOT/Planning Department	Summer 2010