

MEMORANDUM

September 12, 2013

TO: Planning, Housing, and Economic Development Committee
FROM: ^{GO} Glenn Orlin, Deputy Council Staff Director
SUBJECT: Glenmont Sector Plan—fiscal and economic impact; transportation issues

Councilmembers: Please bring your copy of the Draft Sector Plan to this worksession.

This memorandum addresses the Executive Branch's fiscal and economic impact analyses and the transportation elements in the Planning Board's Draft Plan. Some purely technical corrections will be made to the final document, but they are not identified in this memorandum. **Council staff concurs with the Final Draft's transportation-related recommendations, except where noted in this packet.**

1. Fiscal impact. The Office of Management and Budget's Fiscal Impact Analysis of September 6 quantifies the County Government's capital and operating costs due to the proposed development (©1). OMB identifies two categories of capital projects costing about \$83.2 million. Transportation construction and improvements comprise \$72 million of this total, most of which is associated with the portions of the master-planned Georgia Avenue Busway and the proposed Randolph Road Bus Rapid Transit (BRT) line within the sector plan area (\$60 million). However, the benefits of these lines accrue to a much larger area. Neither the Georgia Avenue Busway nor the Randolph Road BRT was assumed in the traffic modeling for the Final Draft Plan; they are warranted whether or not there is additional development above the level approved in the 1997 Sector Plan. Most of the remaining transportation cost is associated with the realignment of the Layhill Road and Georgia Avenue intersection (\$11 million). However, the proposed realignment is much smaller and less costly than that included in the 1997 Sector Plan, which assumed only about half as much housing and employment compared to the Final Draft Plan. The other transportation improvements are for trail-related improvements and traffic calming.

OMB identifies about \$11.2 million in park improvements that will be needed. Most of the cost is \$8.5 million to extend the Sligo Creek Trail through Wheaton Regional Park and Northwest Branch Park to the Matthew Henson Trail. However, the need for this and the other park improvements would exist even without the additional proposed development. One could argue, therefore, that the proposed near doubling of development in the Final Draft will have virtually no net impact on future capital improvements programs.

On the other hand, there are operating budget impacts on the County Government from the new development. The Police Department reports a need for 12 more officers, which would result in one-time costs of about \$876,000 and annual costs of about \$1.3 million. Fire & Rescue Services reports a need for an additional medic unit at Station 18 consisting of two 24/7 positions (7.5 FTEs) costing nearly \$900,000 annually and a one-time cost of nearly \$400,000 for apparatus and specialized rescue equipment.

2. Economic impact. The Department of Finance's Economic Impact Analysis (©2-3) estimates that the development called for in the Plan would generate a negative cash flow to the County Government. Finance's revenue/cost model shows a net outflow of about \$9.3 million annually with the current residential and commercial development, and this outflow would increase by \$1.8 million (to \$11.2 million per year) with the proposed development in the Sector Plan.

Typically residential development produces a net outflow of County revenue, while most commercial development generates a net inflow. Most of the existing and proposed development consists of housing. However, the additional net outflow from the proposed development is fairly small, since most of the proposed housing units are multi-family dwellings that will generate few school-aged children. Furthermore, MCPS has just updated its yield rates, which are considerably lower for multi-family units than have been used to date. (They are slightly higher for single-family units.) The new yield rates are on ©4.

3. Land use/transportation balance. Every master plan should have a balance between its proposed land use and its proposed transportation network and services. For more than two decades this "balance" has been defined as what would be needed to meet the current adequate public facilities (APF) requirements as described in the Subdivision Staging Policy (formerly the Growth Policy). Achieving this balance in a plan is not an academic exercise: if a plan is not balanced, then at some point in the future a proposed master-planned development will be unable to proceed because it will have no means to meet the APF requirements. The only two out-of-balance plans adopted in the last 25 years were the Potomac Subregion Master Plan (2002) and the Chevy Chase Lake Sector Plan (2013).

The 2012-2016 Subdivision Staging Policy (SSP) revised the policy area and local area transportation tests, effective January 1, 2013. Late last fall the Council agreed that the revised methodology would apply to any draft plan brought forward subsequent to January 1; the Glenmont Sector Plan is the third such plan. The Final Draft had been developed under the prior set of requirements, so its "balance" calculations were based on Policy Area Mobility Review (PAMR) and the prior Local Area Transportation Review (LATR) methodology. Over the past several weeks Planning staff and its consultants have conformed this analysis to the Transportation Policy Area Review (TPAR) and the new LATR methodology based on the Transportation Research Board's *Highway Capacity Manual* (HCM).

Meeting the TPAR requirements is not an issue for Glenmont. TPAR is measured over the entirety of the Kensington/Wheaton Policy Area (the area south of Matthew Henson Park, east of Northwest Branch, north of the Capital Beltway, and west of Rock Creek) and the Glenmont Sector Plan is but a very small portion of it. Based on TPAR testing of the build-out of adopted plans by the year 2040, Planning staff forecasts the average speed will be 42% of uncongested speed in the

Kensington/Wheaton Policy Area. The additional development in Glenmont would not cause the policy area to fall below the TPAR roadway adequacy threshold for urban policy areas (i.e., 40% ratio of forecast speed to uncongested speed).

Most of the concerns raised have centered on LATR and intersection congestion. The supplementary testimony from several residents is representative (©5-12). They note that the CLV method of analysis that was used in the Final Draft has flaws; however, as noted above, M-NCPPC and its consultants have re-done LATR based on HCM. They point out that the LATR intersection congestion standard of 1.13 volume/capacity (V/C) for the Glenmont Metro Station Policy Area (MSPA) is well above the nationally acceptable standard. (The standard was formerly 1,800 Critical Lane Volume, also 13% over capacity.) The Council adopted this standard for MSPAs in the mid-1990s to allow more density around most Metro Stations without as many road improvements that would pose difficult barriers to pedestrian movement. The Council recognized that the standard would produce more congestion than typically allowed, but not enough to produce or approach gridlock.

The summary of the HCM analysis by M-NCPPC and its consultants is on ©13. It shows the results according to four scenarios: existing conditions; Year 2040 but without the proposed land use in Glenmont and the Georgia/Randolph interchange; Year 2040 with the proposed land use and the interchange; and Year 2040 with the proposed land use, the interchange, and reducing Layhill Road to 4 lanes between Georgia and Glenallan Avenues. The charts show the levels of intersection congestion in both the AM and PM weekdays peaks under both the CLV and HCM methods of analysis. The bar charts on ©14-17 display the average delay in the peak period for each movement at each of the four intersections that were evaluated.

For determining land use/transportation balance the key data are the V/C ratios under HCM (see the ratios in the second column from the right on ©13). If the ratio is higher than 1.13 in either the AM or the PM peak (highlighted in **bold** type), then the intersection is projected to be worse than the LATR standard. Under the scenario with the Sector Plan's proposed land use and the programmed interchange, the only intersection that is projected to fail is Randolph Road/Glenallan Avenue, with a 1.29 V/C in the AM peak. Under the scenario where Layhill Road between Georgia and Glenallan Avenues is reduced from 6 to 4 lanes—the “road diet”—the Georgia Avenue/Layhill Road intersection is projected to fail, with a 1.21 V/C in the PM peak.

Currently there are two approach lanes on Glenallan Avenue heading south into the intersection with Randolph Road: an exclusive left-turn lane, and a combination left/through/right lane. (An aerial photo of the existing intersection is on ©18.) By adding a third approach lane exclusively for right turns, the V/C ratio in 2040 is projected to be brought down to 1.12 V/C in the AM peak, which is just within the standard. (This added lane would also reduce congestion in the PM peak from 1.01 to 0.91.) There is sufficient room to add this lane with minimal cost and impact. The lane heading northbound from the intersection is much wider than it needs to be; the added lane could be created by using the extra width. If more width is needed, a few feet could be taken from one of the wide grass strips between the existing curb and sidewalk. Taking extra width from the east-side grass strip would be the better choice, as there are a few mature trees planted in the west-side strip.

The problem at the Georgia Avenue/Layhill Road is not the road diet, *per se*. Two lanes in each direction on Layhill Road would provide more than sufficient carrying capacity. The problem is the

nature of the right turns from northbound Georgia Avenue to northeast-bound Layhill Road. Heading north from Randolph Road, Georgia Avenue has three lanes. Nearing Layhill Road, a fourth lane begins that is used exclusively for continuous-flow right-turns, that is, turns that are never stopped by a traffic signal. This is also called a “hot right.” While efficient for vehicular flow, the hot right poses a difficult impediment to pedestrian flow across this leg of the intersection. The Final Draft proposes both eliminating the fourth northbound lane and hot right, as well as reducing the number of lanes on Layhill Road from 6 to 4.

A solution that would bring this intersection within the V/C standard would be to retain the fourth northbound lane for right turns, but to eliminate the “hot” (continuous flow) nature of that turn. In other words, the northbound right-turn lane would be controlled by the traffic signal at Georgia/Layhill. This movement would be allowed through most of each signal cycle, since the only conflicting movements would be to northeast-bound Layhill Road from southbound Georgia Avenue and from eastbound Judson Road—both very small volume movements—and the pedestrian signal phase crossing Layhill Road. The result of this change is to bring the V/C in the PM down from 1.21 to 1.00, even with the “road diet” on Layhill.

Council staff recommendation: Include these two modifications in the Sector Plan, with which the LATR test would be met in 2040 with the Sector Plan’s proposed land use; thus, the plan would be in land use/transportation balance. It should be noted that the forecasted congestion at these intersections may be somewhat overestimated. First, the traffic modeling for this plan did not include the proposed “local streets” in the network (see the tan dashed lines on p. 37 of the Sector Plan). These local streets are meant to collect and distribute traffic to the proposed development areas so as not to overburden some of the existing street network, especially Glenallan Avenue. Second, the plan does not assume a higher non-auto-driver mode share (NADMS) than exists today. The Plan does not cite an estimate for the current mode share, but it does use the assumption from the *TPAR/LATR Guidelines* that the vehicle trip generation from development in Glenmont is 18% less because of its close proximity to a Metro station. This same 18% discount is assumed in 2040 as well, although by then there will also be a Georgia Avenue Busway (already master-planned), a Randolph Road BRT line (concurrently recommended by the Planning Board in its Final Draft of the Countywide Transit Corridors Functional Master Plan), a more extensive pedestrian circulation and bikeway network (see pp. 34-35 and 38-39), and, possibly, parking management (see p. 35). Because the cumulative effect of these measures can’t be quantified, they should simply be considered as a cushion.

4. Local streets. The Sector Plan calls for six new internal roads concurrent with the redevelopment of the major development parcels “to provide internal pedestrian access, vehicular circulation and alternative means of ingress and egress” (p. 33). Each may be a private road if the developer agrees with the nine conditions listed on p. 33; otherwise they would be public roads. These conditions are virtually the same as those enumerated in the recently approved White Flint and Takoma/Langley Crossroads Plans: basically they assure they would be function as if they were public streets. It is understood that while the endpoints of these six streets are to conform what is shown on p. 37, the particular paths these streets may follow between their endpoints are flexible, and would be determined at subdivision approval.

Council staff’s concern is not the recommendation itself, but the format of it. **Council staff recommendation: The local streets should appear in the Street Classification table (Table 3 on p.**

36) with all the attendant data for each, including classification as either a business district street (B-) or a primary residential street (P-). The streets should carry the footnote that they may be constructed as private streets subject to use easements meeting the requirements described on p. 35. This is how the White Flint Sector Plan formatted this element (see ©19).

5. Other transportation recommendations. The Final Draft includes a bikeway network (see pp, 38-39), which is somewhat more extensive than that contained in the 1997 Plan. The two major changes are: (1) it would extend the shared use path along Georgia Avenue north from Glenallan Avenue and would include bike lanes along its entire length in the planning area; and (2) a shared use path along Briggs Road west of Layhill Road. **Council staff recommendation: Concur with the Final Draft.**

Some have called for a pedestrian bridge or tunnel crossing Layhill Road to allow for safe and convenient access to and from the Metro station. Pedestrian underpasses and bridges are expensive to build and maintain, and unless heavily used, could pose security issues. The purpose of the road diet and sidewalk/bikeway recommendations is to improve the ease and safety of the on-the-surface pedestrian connections. **Council staff recommendation: Do not include in the Plan a pedestrian bridge or tunnel crossing Layhill Road.** Nevertheless, the absence of such a bridge or tunnel in a plan would not preclude it from being built, should the need arise.

The Plan calls for the County to explore district-wide parking management alternatives. Some have read into this the desire for a mandatory parking tax on all properties, but that is not the case.

**County Capital and Operating Cost Estimates
Assumed to be Incurred as a Result of the
Glenmont Sector Plan
9/6/2013**

Capital Improvement Projects		
Project	Description	Cost Estimate (\$)
Road Construction and Improvements	<ul style="list-style-type: none"> • Georgia Avenue Busway & Randolph Road BRT (2 of 22 miles for 2 corridors) [\$60 million] • Traffic calming along Glenallen Avenue [\$0.200 million] • Realignment of Layhill and Georgia Avenue intersection [\$11 million] • Traffic signal warrant study [\$0.010 million] • Enhanced signs on streets to improve trail connectivity [\$0.050 million] • Upgrade of existing shared use path on south side of Glenallen Avenue [\$0.750 million] 	72,010,000
Park Land Acquisitions and improvements	<ul style="list-style-type: none"> • Proposed park - Legacy Open Space park adjacent to Glenfield Local Park [\$0.060 million] • Proposed hard-surface trail—extend Sligo Creek Trail through Wheaton Regional Park and Northwest Branch Park to the Mathew Henson Trail [\$8.5 million] • Proposed natural surface trail along Rachel Carson Greenway [\$0.120 million] • Extend Glenmont Greenway south to Shorefield Road [\$0.700 million] • New local park at former Glenmont Elementary School [\$0.480 million] • Sidewalks, paths and signage at Saddlebrook Local Park [\$0.450 million] • Acquisition of 1 or more lots (2 minimum) for a small playground west of Georgia Avenue and north of Randolph Road [\$0.850 million] 	11,160,000
Subtotal Capital Improvement Projects:		83,170,000
Potential Future Fiscal Impacts		
Department	Description	Cost Estimate (\$)
Police	<ul style="list-style-type: none"> • Based on the projected increase in density within the plan area, MCPD reports the need to increase staffing in the 4th District by adding 12 officers, to include 4 officers for day shifts, 4 officers for night shifts, 1 detective for mid level crime investigation, 1 detective for District Level crime investigation and 2 motorcycle traffic officers (1 day shift, 1 night shift) for total personnel costs for 12.0 FTE of \$1,100,052 annually at full implementation • Add 4 POIII for day shifts at 4.0 FTE [\$366,684] • Add 4 POIII for evening shifts at 4.0 FTE [\$366,684] • Add 2 detectives (POIII) for crime investigation at 2.0 FTE [\$183,342] • Add 2 Motorcycle traffic officers (POIII) at 2.0 FTE [\$183,342] • Operating expenses including vehicle maintenance (annually) [\$214,404] • POC Equipment costs (one time) [\$139,944] • Purchase 12 marked vehicles (one time) [\$358,344] • Equipment for 12 marked vehicles (one time) [\$377,604] 	One time costs: 875,892
Fire and Rescue	<ul style="list-style-type: none"> • Fire and Rescue Service projects an increase in ALS & BLS call load from the Glenmont Sector Plan which will require placing a medic unit in service at Station 18. A fully equipped medic unit will cost approx. \$382,000 and recurring PC costs for two 24/7 career positions (Master Firefighter-Paramedic and Firefighter II) will be \$887,500 annually. • Establishing a medic unit will require the following costs: -Apparatus costs of \$290,400 in year one for one vehicle -Specialized rescue equipment costs of \$91,600 in year one -Personnel costs of \$887,500 annually 	One time costs: 382,000
Subtotal Operating Budget Impacts (One time costs):		1,257,892
Subtotal Operating Budget Impacts (Ongoing costs):		2,201,956
Subtotal Potential Future Fiscal Impacts:		3,459,848
Total Cost Estimate (Capital Improvement Projects + Potential Future Fiscal Impacts)		86,629,848

Notes and Assumptions

- The following departments reported no fiscal impacts associated with the Glenmont Sector Plan:
Housing and Community Affairs (DHCA), Environmental Protection (DEP), Permitting Services (DPS), Recreation (REC), Economic Development (DED)
- For the Georgia Avenue Busway and Randolph Road BRT projects, the entire bus rapid transit system must be built to achieve the benefits of the two (2) miles located within the Plan area.
- The Plan calls for a public parking subsidy by the County to support adequate private investment for redevelopment of the shopping center. This subsidy would equal 14% of total redevelopment costs. The economic analysis prepared by W-ZHA, LLC (Appendix A) tested the feasibility of a mid-rise project (4-6 stories, stick built) with structured parking. The study estimates the total subsidy for public parking at \$46.6 million (\$25.5 million in Phase I), but there may be other mechanisms to spur development.
- The Plan recommends that the County "explore district-wide parking management alternatives to assist in the active management of parking demand and promote shared parking efficiencies" and that parking management "...may be an appropriate solution in the future to support economic development in Glenmont." Not enough detail is available at this time to quantify costs for public parking.
- Implementation of State legislation creating an Enterprise Zone in the Glenmont area will create state income tax credits and local real property tax credits. The fiscal impact of such tax credits cannot be quantified at this time because local tax credits have yet to be defined and it is unknown how many businesses will apply for and receive available tax credits
- The envisioned Wheaton Library/Rec Center will be located outside of the plan area but will serve the entire plan area. MCPL and/or REC may see an increase in operating costs for the Wheaton Library/Rec Center, but those costs cannot be determined at this time.
- HHS believes that some financial assistance, case management and housing location services may be needed to help relocate displaced low-to-moderate income households. Not enough detail is available to quantify costs.
- The Planning Department reports that the planned "grid of internal roads" would likely be built by developers as part of their projects.
- The Plan calls for replacement of Fire Station 18 which is currently in the CIP as project #450900. Total estimated cost for the replacement fire station is \$14.307 million. MCFRS reports that the former W/RS Station will need to be used as an Interim Station 18 to facilitate construction of the planned grade separation at Georgia Ave and Randolph Rd. Renovations, leasing costs and maintenance for interim Station 18 are estimated at \$827,068. No new CIP dollars are required for Fire & Rescue based on the Plan.
- The current Georgia Ave & Randolph Rd Interchange project will not require the 4th District Police Station to relocate. However, as the shopping center redevelops the current interchange may not be able to carry traffic loads that could be generated. At that time, the interchange may have to be re-examined and the Station may be more significantly impacted.
- All cost assumptions are in FY14 dollars and may change due to new fiscal assumptions in FY15.
- MCPS reported the Glenmont Sector Plan will not result in new school construction but MCPS will retain the Saddlebrook site as a future school location and will provide the following increase to school populations based on the 8,900 total mid & high rise units at buildout: Elementary: 244 students; Middle: 226 students; High School: 191 students.

Economic Impact Analysis for Glenmont Sector Plan

Summary: Below is an economic impact scenario that attempts to show existing development, and the maximum development that could follow from the enactment of the Glenmont Sector Plan as shown in the Planning Board Draft (PBD). It is based on the County's Economic Development Fund Fiscal Impact Model, and represents a broad-brush look at the higher level revenues and expenditures, rather than being all-inclusive. The figures do not include additional CIP expenditures, which are in a separate document. Assumptions are shown on the second page.

	Existing 2011: Single Family, Multifamily, and Commercial Development as Shown in Appendix H of the Planning Board Draft	Proposed 2013 Zoning Envelope: New Single Family, Multifamily Residential, and Commercial Development as Shown in Appendix H of the Planning Board Draft	Combined Existing 2011 and Proposed 2013 Zoning Envelope: 20-30 year est. of what could be built per Plan's proposed zoning
	Commercial: 402,381 sf Single Family Det: 1,276 du Single Family Att: 162 du Multifamily: 1,673 du Jobs: 873	Commercial: 1,053,902 sf Single Family Det: 261 du Single Family Att: 126 du Multifamily: 7,494 du Jobs: 2,635	Commercial: 1,456,283 sf Single Family Det: 1,537 du Single Family Att: 288 du Multifamily: 9,167 du Jobs: 3508
THE NEW DEVELOPMENT			
Estimated Commercial Real Property	\$69,936,560	\$183,175,350	\$253,111,910
Estimated Value of Personal Property	\$6,993,656	\$18,317,535	\$25,311,191
Estimated Residential Real Property	\$543,142,038	\$1,048,911,712	\$1,592,053,750
Real Property Tax rate at location	\$1.133	\$1.133	\$1.133
Personal Property Tax rate at location	\$2.555	\$2.555	\$2.555
Number of Jobs	873	2,635	3,508
Average Salary Per Job	\$49,797	\$49,797	\$49,797
Income Tax per primary job	\$1,275	\$1,275	\$1,275
DEMOGRAPHICS			
Households	3,111	7,881	10,992
Population	8,213	20,806	29,019
Schoolchildren	1,092	412	1,504
College Students	226	573	799
Number of jobs generated	873	2,635	3,508
% of Jobs County Residents	60%	60%	60%
Net new jobs are County residents	524	1,581	2,105
REVENUES			
Property Tax Revenues			
From Commercial	\$971,069	\$2,305,262	\$3,276,331
From Housing	\$6,153,799	\$11,884,170	\$18,037,969
Income Tax Revenues	\$7,806,420	\$12,832,495	\$20,638,914
Energy & Telephone Taxes	\$667,934	\$1,934,299	\$2,602,233
Other Job Related Revenues	\$29,897	\$90,231	\$120,129
Other Population Related Revenues	\$1,651,834	\$4,184,540	\$5,836,375
Total County Revenues	\$17,280,954	\$33,230,997	\$50,511,951
COSTS OF COUNTY SERVICE			
Population related costs	\$9,556,170	\$24,208,350	\$33,764,520
Job related costs	\$163,427	\$493,231	\$656,658
Schoolchildren costs	\$15,039,946	\$5,675,406	\$20,715,352
College student costs	\$1,856,762	\$4,703,677	\$6,560,439
Total County Service Costs	\$26,616,305	\$35,080,664	\$61,696,969
TOTAL ECONOMIC IMPACT			
(Revenues Less Costs)	(\$9,335,351)	(\$1,849,667)	(\$11,185,019)

Assumptions:

1. Used 2013 Proposed Zoning Envelope Buildout totals provided in Appendix H of the Planning Board Draft
2. Average salary is based on 2010 Median Household Income for District 4 from Council Districts by the Numbers - Montgomery County Planning Department
3. Existing 2011 job count provided by Montgomery County Planning Department. 2013 Proposed Zoning Envelope phase job count is based on 1 job per 400 sf; standard provided by M-NCPPC
4. Assumes commercial/personal property is 10% of the real property assessable base
5. Multifamily in Existing 2011 phase reflects the average assessment for Privacy World, Winexburg Manor, Glenmont Forest, Woodberry/Westerly Park, The Glen, and The Oakfield. Multifamily in 2013 Proposed Zoning Envelope phase reflects the average assessments of the Archstone, Citron and Metropointe
6. Commercial values in Existing 2011 and Proposed 2013 Zoning Envelope phases are based on current assessments taken from various shopping centers, offices, retail store, and restaurants in the Glenmont Sector Plan
7. Average Household size is based on data for District 4 From Council Districts by the Numbers
8. Real property tax rates based on FY14 approved budget
9. Student generation rates by unit type for East County provided by MCPS in September 2013: Single family detached .553, Single family attached (townhomes) .341, Multi-family in Existing 2011 phase (predominantly low-rise garden style apts.) .198, and Multi-family in 2013 Proposed Zoning Envelope (predominantly high rise-5 stories or more apts.) .030.
10. 2.8% of population generated are Montgomery College students per FY14 approved budget
11. 60% of the jobs created are Montgomery County residents
12. \$692 Income Tax Offset Credit factored for single-family attached and detached

Montgomery County Student Generation Rates for New Housing by Type
Based on 2013 Analysis of Students and County Parcel File

NORTH				
Housing Type	Factors (number of students generated per unit)			
	Elementary	Middle	High	Total K-12
Single Family Detached	0.416	0.175	0.213	0.804
Townhouse	0.242	0.091	0.122	0.455
Multi-Family Low to Mid-Rise (4 or fewer floors)	0.051	0.025	0.027	0.103
Multi-Family High Rise (5 or more floors)	0.052	0.018	0.031	0.101
SOUTHWEST				
Housing Type	Factors (number of students generated per unit)			
	Elementary	Middle	High	Total K-12
Single Family Detached	0.323	0.132	0.153	0.608
Townhouse	0.166	0.072	0.099	0.337
Multi-Family Low to Mid-Rise (4 or fewer floors)	0.063	0.023	0.032	0.118
Multi-Family High Rise (5 or more floors)	0.024	0.008	0.012	0.044
EAST				
Housing Type	Factors (number of students generated per unit)			
	Elementary	Middle	High	Total K-12
Single Family Detached	0.233	0.124	0.196	0.553
Townhouse	0.178	0.062	0.101	0.341
Multi-Family Low to Mid-Rise (4 or fewer floors)	0.094	0.046	0.058	0.198
Multi-Family High Rise (5 or more floors)	0.019	0.005	0.006	0.030
COUNTYWIDE HOUSING STUDENT YIELD FACTORS				
Housing Type	Factors (number of students generated per unit)			
	Elementary	Middle	High	Total K-12
Single Family Detached	0.357	0.153	0.190	0.700
Townhouse	0.214	0.082	0.113	0.409
Multi-Family Low to Mid-Rise (4 or fewer floors)	0.069	0.031	0.039	0.139
Multi-Family High Rise (5 or more floors)	0.024	0.008	0.012	0.044

Based on a 2013 analysis of students residing in housing units occupied within last 10 years, through a matching of student records and the county parcel file. A collaborative effort of Division of Long-range Planning, MCPS, and the Center for Research & Information Services, Montgomery County Planning Dept.

NORTH includes general "upcounty" areas including: Clarksburg, Damascus, Gaithersburg, Magruder, Northwest, Poolesville, Quince Orchard, Seneca Valley, Sherwood, and Watkins Mill clusters.

SOUTHWEST includes: Bethesda-Chevy Chase, Churchill, Walter Johnson, Richard Montgomery, Rockville, Whitman, and Wootton clusters.

EAST includes: Downcounty Consortium (Blair, Einstein, Kennedy, Northwood, and Wheaton, and Northeast Consortium (Blake, Paint Branch and Springbrook), clusters.

LAYHILL SOUTH COMMUNITY ASSOCIATION

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September 6, 2013

To: Montgomery County Council PHED Committee

From: Susan Johnson, Sherley Lee, Robert Shoenberg, Vicki Vergagni

Re: Glenmont Sector Plan

You have all been good enough to talk to us during the summer and have a pretty good idea of what our concerns are. Principally, we find it likely that the density of development proposed in the Glenmont Sector Plan will overwhelm the local road network. We have had an opportunity to review the latest studies performed by Sabra-Wang using the HCM analysis and note that they confirm our concerns about an overload on several intersections both now and at full buildout. We further note that the study, as it has been carried out so far does not reflect the cumulative delay at successive traffic signals, such as Layhill and Glenallan plus Layhill and Georgia. We are also puzzled by the fact that this study shows less impact for the 1550 units projected for the Privacy World property than did earlier studies. We already know that the development only of the Privacy World property (to be known as "Glenmont Metrocentre") will mean a waiting time of up to 20 minutes for cars to exit the new Metro parking garage on the west side of Georgia Ave. In short, it defies all logic and direct observation to believe that the addition of 4000 new dwelling units (not to mention new commercial establishments) with approximately 6000 automobiles and 9000 residents will not appreciably impact traffic.

We question the use of a 1.13 volume-to-capacity ratio to determine the acceptability of an intersection's traffic load. The Federal Highway Administration Manual, like most other publications on the subject, states that at a V/C ratio of more than 1.00, "the demand exceeds the available capacity of the intersection. Excessive delays and queuing are anticipated."

One set of assumptions the currently available studies make relate to the availability of public transportation. While Metro's Red Line will carry some residents into the District, the number of people to whom that option is applicable has peaked. An increasing number will rely on cross-county transportation which at this time is poor. It will be many years before the projected

Bus Rapid Transit System is in place, if it ever is. Furthermore, the BRT is north-south oriented, which will not be useful for workers going to the central and western parts of the county. Thus assumptions about public transportation users may be too high, not because people will be unwilling to use buses but because they will not be headed in the right direction.

While the traffic matters are at the heart of our objections to the sector plan, we also question the economic study that seems to require such density in order to make the Glenmont Shopping Center redevelopment viable. The sector plan assumes that Glenmont will not be a destination as are, say, Bethesda or Silver Spring. Thus, they assert, enough people must live in the immediate area to support shopping center businesses, whose costs of building and renting commercial space will be much higher than currently. But this assumption does not take into consideration use of the shopping center by people who live further up Layhill Rd. than the plan comprehends or both east and west on Randolph Rd. or north and south on Georgia Ave. If some of the businesses in a redeveloped shopping center offer special or even unique opportunities (e.g., an especially good restaurant or one with a cuisine not offered elsewhere, a bakery like the late lamented Upper Crust which drew people from a wide area to its Colesville location, an independent clothing store such as exists at Wildwood, etc.), people who can travel on these major arteries will come to Glenmont. Taking these slightly more distant communities into consideration reduces the economic need for such density.

We are conscious of the fact that the PHED Committee has an extraordinarily large amount of business before it. Thus members do not have time to explore the proposals in the detail they might like and thoroughly understand the interactions of the many parts. The natural tendency is to affirm the judgments of the experts, the staff of MNCPPC. We believe it would help if you heard directly from other people who have spent a lot of time on the details and who have a different perspective, one different from a county agency operating within the rather rigid framework of established policy. Thus we ask for the opportunity to engage in dialogue with the Park and Planning staff in your presence so that you may hear argument and counterargument equally represented. This kind of exchange occurs far too seldom, the usual procedure being for the public to present testimony at a public hearing or in writing without the possibility of any discussion or exchange of information and views. That procedure stacks the cards against the public.

We recognize that the County Council has adopted a policy of building densely around Metro stations. When the proposed density unacceptably impacts the surrounding area, the Council has three options: mitigate traffic, reduce development or make a local exception to the general rule. Since the Glenmont Sector Plan proposes an unacceptably high density of development, and since congestion mitigation steps are only vaguely possible, the third option seems most appropriate in this case. Having established the policy, the Council has the option of modifying the policy in circumstances that warrant it. We would argue that the full implementation of the Glenmont Sector plan as proposed is one of those circumstances.

Please understand that we welcome a major redevelopment of the shopping center. Our objection is to the net addition of close to 4000 housing units in the Glenmont Sector Plan area, probably some 9000 people and at least 6000 automobiles. That spells misery for a lot of people—and not just those in the sector plan area—for a very long time. Your decisions now have a reach of many years. We hope you will see to it that you have the best information before you as you make those decisions and that you take the time necessary to get that information.

**Additional Testimony for the Montgomery County Council
Glenmont Sector Plan – Public Hearing Draft
Tuesday, September 10, 2013**

**Vicki Vergagni
President, Board of Directors and
On-Site Community Manager
Glen Way Gardens Condominium**

Based on meetings with staff of the Maryland-National Capital Park and Planning Commission and the Montgomery County Council subsequent to the Public Hearing on the Glenmont Sector Plan before the County Council, and based on Dr. Glenn Orlin's invitation to submit testimony as of the aforementioned date, I hereby submit additional testimony.

My name is Vicki Vergagni. I represent 214 condominium units and approximately 550+ residents of our community, Glen Way Gardens. Glen Way Gardens is surrounded by all four of the major parcels that are to be re-developed in the Glenmont Sector Plan. It is the property that will be the most immediately impacted by the redevelopment of each and every parcel.

My community's objections to the Glenmont Sector Plan are both related to process and to specifics. In that regard, we offer the following observations and comments.

1. Critical Lane Volume (CLV) is the wrong analytical tool to assess/project traffic in situations such as Metro policy areas for several reasons:

- a. ***CLV is not the accepted analytical tool when signalized intersections are less than half a mile apart.*** Both the State of Maryland and the Highway Capacity Manual address this issue. On page 7 in Chapter 16 of the Highway Capacity Manual 2010, it shows that an intersection or segment is effectively isolated (from the impact of other intersections), if the intersections are more than 3,000 feet apart on roads with speed limits of 25 - 35 mph. In that a mile is 5,280 feet, this means that the intersections must be more than half a mile apart to consider the use of CLV. Use of CLV when the intersections are less than half a mile apart results in inaccurate counts of intersections' thru-traffic which creates artificially low counts and leads to conclusions that there is no problem (*i.e.*, that traffic is free-flowing). Use of CLV for planning purposes is much like burning a steak and then smothering it in sauce (which won't cure the underlying problem).

- b. ***CLV does not address measures of effectiveness that are anticipated outcomes of sector and development plans***, including: volume-to-capacity ratio related to saturation flow rate (e.g., number of lanes, lane width, area type, heavy vehicles, grade, parking, bus stops, lane utilization, right and left-turn factors, pedestrian and bicycle factors); green time; cycle length; lane group volume-to-capacity ratio; and approach volume-to-capacity ratio. CLV also fails to take into account lane group capacity and delay, approach capacity and delay, left-turn phasing, signal timing (e.g., cycle length, green times), geometrics, pedestrians and bicyclists, area type, progression, upstream metering and signal control type.

- c. ***CLV has several weaknesses that are critical to transportation planning/operations, particularly on a congested road network***. It does not support operations analysis because it masks existing problems. It does not address intersection capacity affected by operations measures. It does not analyze lane groups. It does not analyze intersection approaches. It is more prone to operator error. It does not suggest more accurate geometric improvements. It requires more user judgment. It has not been improved since its inception.

In spite of numerous requests of aforementioned staff and an extensive literature search, there is no evidence that CLV is a preferred analytical tool for congested roadways.

2. HCM is the appropriate analytical tool to assess/project traffic in congested areas such as Glenmont, and is supportive of a cost-benefit analysis. The fact that sector plans are being created for 20 years out and lay the ground work for interim development means that millions, if not billions, of dollars are at stake. The County cannot afford to make decisions based on incomplete information and misleading conclusions provided by CLV based on unwillingness to abandon the County's historical approach to traffic analysis. While HCM does take more time to gather and analyze information, it is a justifiable cost given the stakes at hand.

3. The County's policy of applying HCM only when the CLV exceeds 1600 is an unsupported "standard". A perfect example of this is the remand of Glenmont Metrocentre which showed a CLV of 1267 – and traffic backed up through two intersections. Although HCM should be used at all times in a sector plan, a minimum threshold for use of HCM should be when a vehicle sits through more than one cycle of the same light at an intersection.

4. The volume-to-capacity ratio of 1.13 that has been adopted by the County Council for Metro policy areas is a meaningless standard. A literature search in this regard consistently produces the conclusion that such a volume-to-capacity ratio virtually ensures congestion. In fact, the technical literature advises that when a roadway has a volume-to-

capacity ratio greater than .95, congestion will begin. Below is an excerpt from a publication of the Federal Highway Administration.

Publication Number: FHWA-HRT-04-091

Date: August 2004

Signalized Intersections: Informational Guide

Critical Volume-to-Capacity Ratio	Assessment
< 0.85	Intersection is operating under capacity. Excessive delays are not experienced.
0.85-0.95	Intersection is operating near its capacity. Higher delays may be expected, but continuously increasing queues should not occur.
0.95-1.0	Unstable flow results in a wide range of delay. Intersection improvements will be required soon to avoid excessive delays.
> 1.0	The demand exceeds the available capacity of the intersection. Excessive delays and queuing are anticipated.

Understanding the critical movements and critical volumes of a signalized intersection is a fundamental element of any capacity analysis. A CMA should be performed for all intersections considered for capacity improvement. The usefulness and effectiveness of this step should not be overlooked, even for cases where more detailed levels of analysis are required. The CMA procedure gives a quick assessment of the overall sufficiency of an intersection. For this reason, it is useful as a screening tool for quickly evaluating the feasibility of a capacity improvement and discarding those that are clearly not viable.

The County has changed the denominator for its volume-to-capacity ratio to establish a relaxed standard; however, that standard does not change the reality of the traffic that drivers, pedestrians and bicyclists experience. This is not an approach that assures that development is done in a manner that supports the public interest.

5. The Council must be privy to all traffic information related to any sector plan.

At this point, staff is providing the Council only "gross" traffic information related to intersections for its decision-making. *(And that information with regard to the four key*

intersections in the Glenmont Sector Plan is neither complete nor accurate as of September 6, 2013.) Even the "weighted" CLV average for an intersection is inappropriate on a congested roadway (which does not generate an accurate picture of traffic because only vehicles that go through an intersection are counted). And the uni-directional nature of traffic in the peak rush hours further discredits the CLV as the County's analytical traffic tool of choice. The Council also should be provided with "movement" information, as well as "corridor" information, as they provide a more complete picture of reality.

6. Putting Layhill Road on a "diet" by reducing it from six lanes to four lanes between Georgia Avenue and Glenallan Avenue is unacceptable on a number of levels.

- a. This would significantly *increase both delay and queuing on Layhill Road* in the morning and evening rush hours.
- b. Those wishing to exit the "old" Metro garage on Layhill Road will be unable to do so and must use one of the other two exits, which would **exacerbate both delay and queuing at Metro garage exits onto Georgia Avenue and Glenallan Avenue.**
- c. Vehicles wishing to get onto Layhill Road from the "west" in the morning and from the "east" in the evening will have a nearly impossible task, and will be required to *"circle" the Metro station to gain access.*

7. Montgomery County cannot have its density cake and eat it, too. If density is a goal, significant traffic mitigation must be employed. With regard to Glenmont Metrocentre, a bridge for pedestrians and bicyclists must be built to assure safety which will encourage the use of transit. With regard to the massive amount of development slated for Glenmont Metrocentre, Winexburg, Glenmont Forest and Glenmont Shopping Center (all of which are mixed use, so have significantly higher trip generation rates than purely residential areas), there must be several approaches to traffic mitigation (*e.g.*, "all-walk/bike" intersection at Glenallan and Layhill that allows folks to cross catty-corner to save time for vehicular traffic; pedestrian and bicycle bridge across Layhill Road to the Glenmont Shopping Center). Further, when looking at density, the County also must consider the routine, non-rush hour traffic that generates an average of two to three vehicular trips per day per domicile. Our residents are not interested in living on a mini-Rockville Pike which has congestion throughout the daylight hours, and often into the nighttime.

8. A public/private road should be built north of Winexburg and Glenmont Metrocentre between Georgia Avenue and Randolph to parallel Glenallan Avenue to line up with Denley so that Glenallan Avenue is not carrying all of the traffic. (There would have to be a cut in the median on Layhill Road to access the cross-road.)

9. The County has three options for addressing growth: mitigate traffic, reduce development, and/or change the rules governing development. **The Glenmont Sector Plan provides no mitigation of traffic or reduction in development. The only thing it has done is employ rules that assure a lax standard to analyze traffic which facilitates development and creates a false impression that traffic mitigation is not needed.** This approach operates to the detriment of those living and/or driving through the area on a regular basis. Failing to provide appropriate traffic mitigation with a four-to five-fold increase in density is irresponsible. It is time to “change the rules” to support the public interest, such as lowering the density goal to assure that the basic character of a neighborhood is not changed and that its quality of life is enhanced, not destroyed. to development

10. The closure of Judson at Georgia Avenue would be helpful with regard to the timing of the lights at the intersection at Georgia and Layhill. This would provide approximately 24 seconds for pedestrians and bicyclists to cross Layhill Road. It is important to note, however, that while an individual could cross the 4 to 6 lanes of Layhill Road in that period of time, a platoon of individuals cannot. With the anticipated increase in the use of transit, a platoon more accurately reflects the volume of pedestrian traffic.

11. Obviously traffic will get worse in the future in general; however, the notion presented by M-NCPPC staff that adding 4,000+ domiciles (and 10,000+ individuals) within one block of Metro in Glenmont will not exacerbate traffic defies logic. Even the HCM traffic analyses done for the Glenmont Metrocentre remand indicate that with the addition of only Glenmont Metrocentre, virtually every key intersection associated with the Glenmont Sector Plan will have an increase in delay and queuing, and that all will degrade with some “failing” (*i.e.*, more than an 80-second delay to drivers) -- in both the a.m. and p.m. peak hours.

12. If a neighborhood into which many of us invested is to change per the preference of the County, the citizenry should receive benefits that outweigh the disadvantages. An improved shopping center would be welcomed; however, the bottom line is whether or not the daily grind of a difficult/unsafe commute (via transit or vehicle) exceeds the benefit of good shopping one or two days each week.

As a final comment, **M-NCPPC and the Council should not be taking up all of the sector plans at once.** They should be spread out over several years -- preferably one sector plan per year, but not more than two..... ***And to add a complete re-write of zoning, along with the routine review of specific developments, is folly.*** The plethora of information, much of which cannot be digested, is resulting in decision-making with unintended consequences that do not support the public interest -- and will require far more effort to “undo” than it took to “do” in the first place.

- Finally, the County should not be penny-wise and pound-foolish. Invest taxpayer resources in long-term issues that have potentially severe consequences for them. This means investing in solid traffic studies.

Summary

Every day voters are reminded of the money they waste on gasoline and the time they lose as they sit in traffic. Come election time there will be signs at congested intersections asking folks to “honk against congestion” and then to “vote against incumbents” who brought it to them. We trust that those of you who wish to run again will make traffic study literacy a priority, and then approve sector plans and developments only as they benefit the community.

Even if folks don't agree, it is much easier to swallow a bitter pill if they feel that they have been treated fairly. As one individual who regularly sits in traffic told me, he is tired of County staff and Councilmembers telling him that there currently is, and in the future will be, negligible congestion -- as if he is ignorant of traffic conditions that he experiences every day. He also notes that it appears that development in the County, particularly when it comes to traffic, is being built on a house of cards. And he is tired of paying more for less as the County produces one traffic jam after another – never looking back to see what went wrong.

Based on the incomplete HCM traffic study of Glenmont intersection, as well as the erroneous supporting documentation for the Glenmont Sector Plan, we believe that the PHED should invite established leaders of the various communities to collaborate with them to fashion a more appropriate sector plan for Glenmont.

Thank you for the opportunity to present the views of the majority of our community.

Existing Conditions						
AM (PM)						
Intersection	Critical Lane Volume			HCM		
	CLV	V/C Ratio	Level of Service	Delay (sec)	V/C Ratio	Level of Service
Georgia Ave and Glenallan Ave	867 (1120)	0.54 (0.70)	A (B)	21.4 (15.6)	0.57 (0.70)	C (B)
Georgia Ave and Layhill Rd	1114 (1062)	0.70 (0.66)	B (B)	29.4 (25.7)	0.75 (0.72)	C (C)
Randolph Rd and Glenallan Ave	1320 (1065)	0.82 (0.67)	D (B)	38.4 (37.7)	0.91 (0.71)	D (D)
Layhill Rd and Glenallan Ave	875 (898)	0.55 (0.56)	A (A)	28.9 (30.6)	0.60 (0.60)	C (C)

Thresholds are set at CLV of 1800 and v/c of 1.13. Values that exceed these thresholds are bolded.

Base Conditions: 2040 Volumes without Added Land Use with Existing Transportation Network						
AM (PM)						
Intersection	Critical Lane Volume			HCM		
	CLV	V/C Ratio	Level of Service	Delay (sec)	V/C Ratio	Level of Service
Georgia Ave and Glenallan Ave	984 (1167)	0.61 (0.73)	A (C)	38.9 (24.8)	0.65 (0.75)	D (C)
Georgia Ave and Layhill Rd	1152 (1295)	0.72 (0.81)	C (C)	33.8 (38.4)	0.73 (0.81)	C (D)
Randolph Rd and Glenallan Ave	1579 (1229)	0.99 (0.77)	E (C)	79.3 (25.1)	1.08 (0.80)	E (C)
Layhill Rd and Glenallan Ave	936 (1027)	0.58 (0.64)	A (B)	30.0 (33.1)	0.60 (0.70)	C (C)

Thresholds are set at CLV of 1800 and v/c of 1.13. Values that exceed these thresholds are bolded.

Proposed Conditions: 2040 Volumes with Added Land Use with Randolph/Georgia Interchange						
AM (PM)						
Intersection	Critical Lane Volume			HCM		
	CLV	V/C Ratio	Level of Service	Delay (sec)	V/C Ratio	Level of Service
Georgia Ave and Glenallan Ave	1262 (1537)	0.79 (0.96)	C (E)	36.7 (41.3)	0.91 (1.07)	D (D)
Georgia Ave and Layhill Rd	1254 (1447)	0.78 (0.90)	C (D)	16.5 (34.9)	0.80 (0.91)	B (C)
Randolph Rd and Glenallan Ave	1785 (1532)	1.12 (0.96)	F (E)	149.9 (73.1)	1.29 (1.13)	F (E)
Layhill Rd and Glenallan Ave	995 (1230)	0.62 (0.77)	A (C)	29.0 (31.0)	0.66 (0.84)	C (C)

Thresholds are set at CLV of 1800 and v/c of 1.13. Values that exceed these thresholds are bolded.

Future Condition: 2040 Volumes with Added Land Use, Randolph/Georgia Interchange, & 4 Lanes on Layhill Rd						
AM (PM)						
Intersection	Critical Lane Volume			HCM		
	CLV	V/C Ratio	Level of Service	Delay (sec)	V/C Ratio	Level of Service
Georgia Ave and Glenallan Ave	1262 (1537)	0.79 (0.96)	C (E)	39.6 (50.3)	0.94 (1.08)	D (D)
Georgia Ave and Layhill Rd*	1294 (1840)	0.81 (1.15)	C (F)	27.2 (106.9)	0.83 (1.21)	C (F)
Georgia Ave and Layhill Rd**	1319 (1578)	0.82 (0.99)	D (E)	22.3 (44.7)	0.82 (1.00)	C (D)
Randolph Rd and Glenallan Ave	1785 (1532)	1.12 (0.96)	F (E)	132.5 (45.2)	1.28 (1.01)	F (D)
Randolph Rd and Glenallan Ave***	1497 (1400)	0.94 (0.87)	E (D)	89.5 (31.2)	1.12 (0.91)	F (C)
Layhill Rd and Glenallan Ave	1394 (1386)	0.87 (0.87)	D (D)	41.1 (40.4)	0.94 (0.91)	D (D)

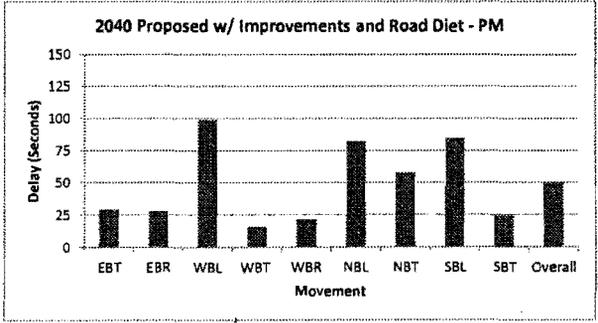
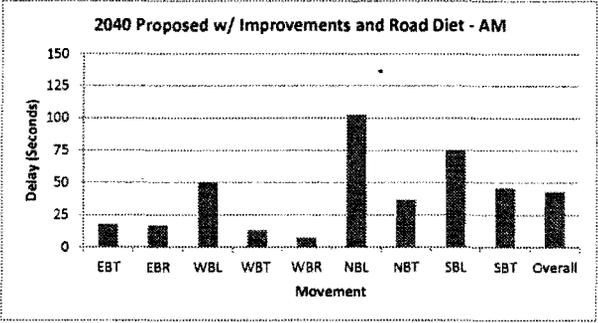
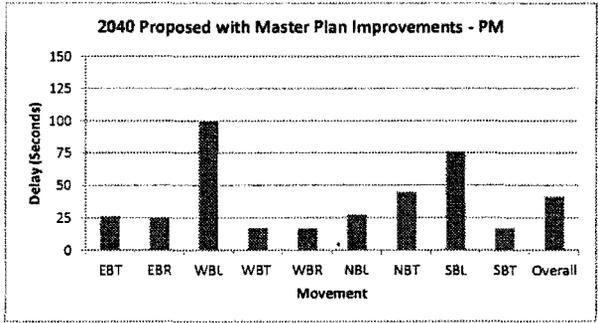
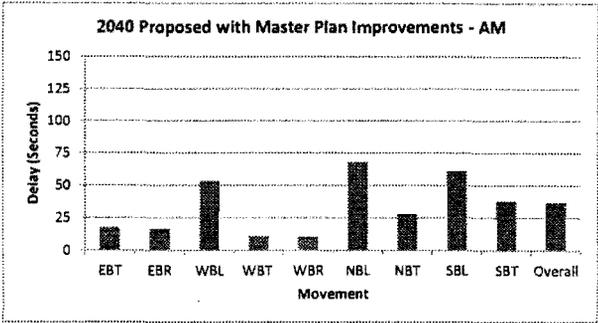
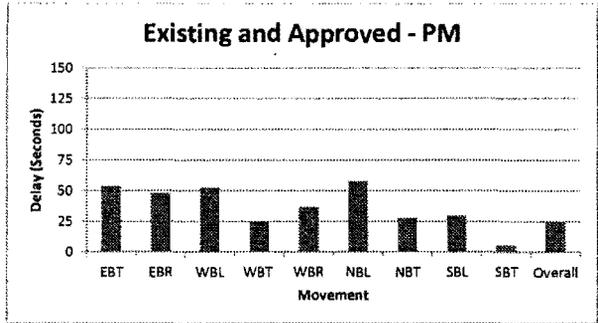
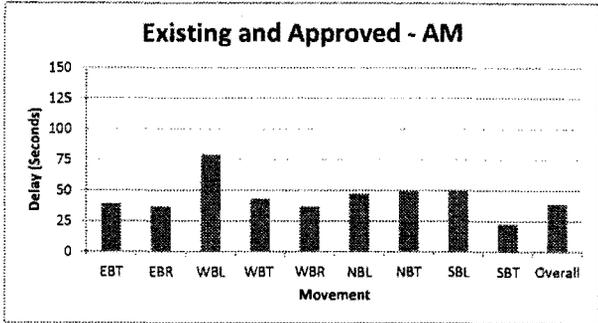
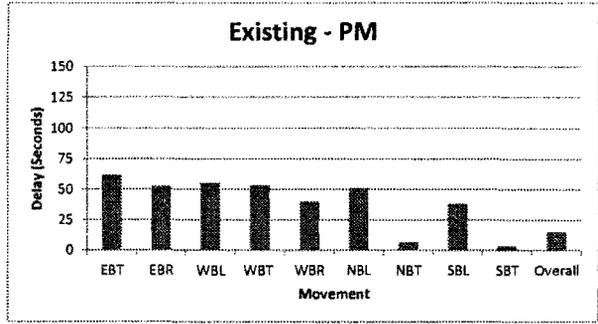
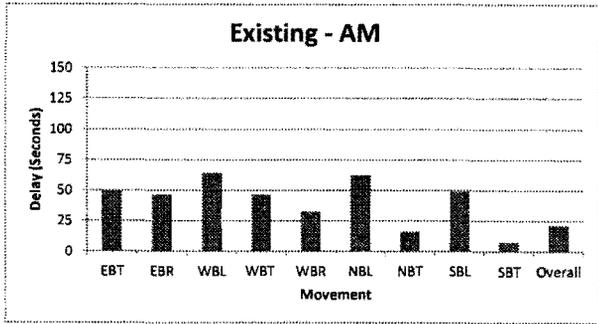
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*Road diet on Layhill Rd with removal of free uncontrolled right-turn lane from northbound Georgia Ave to Layhill Rd

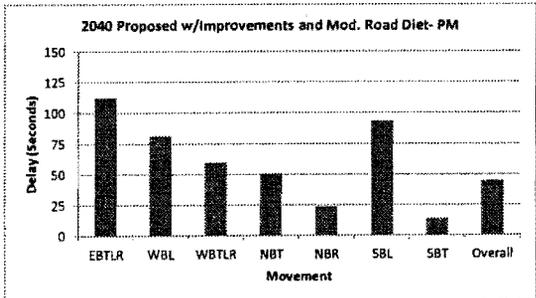
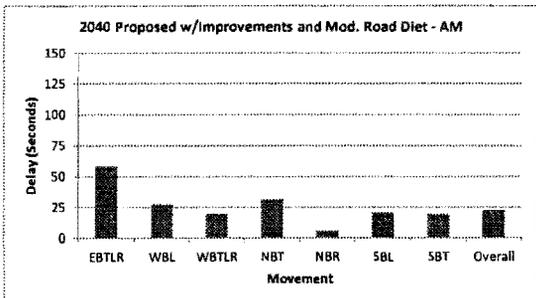
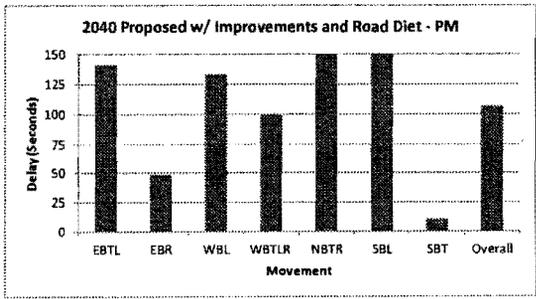
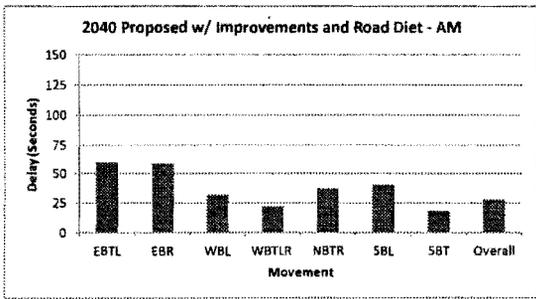
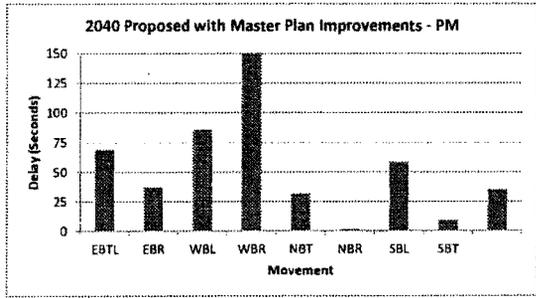
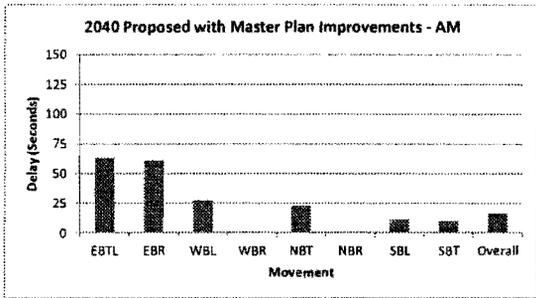
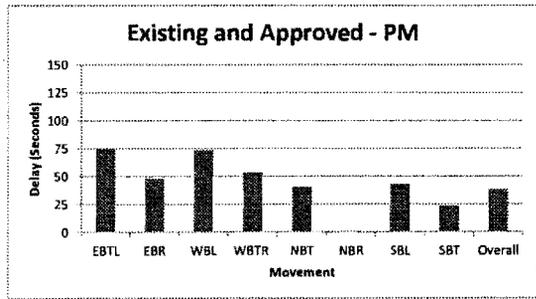
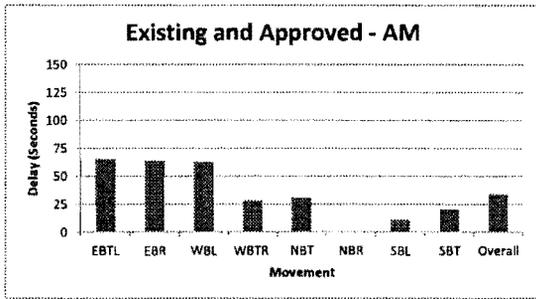
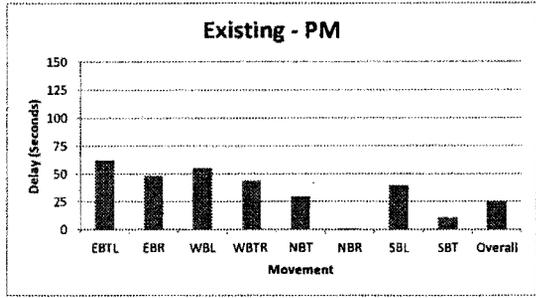
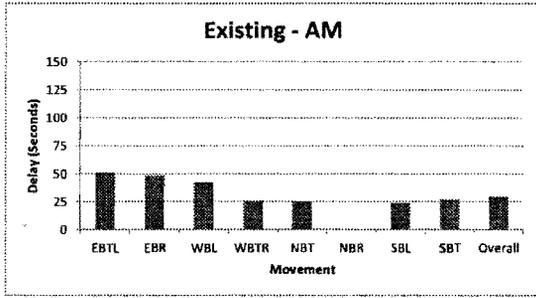
**Road diet on Layhill Rd maintaining northbound right-turn lane from Georgia Ave to Layhill Rd as a controlled right turn; Judson Rd one lane outbound

***Randolph Rd/Glenallan Ave with an exclusive southbound right turn lane on Glenallan Rd.

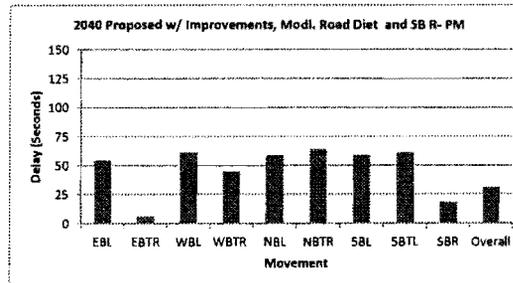
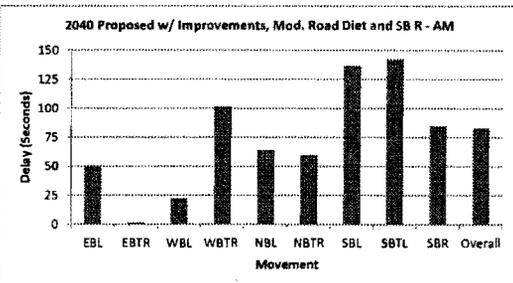
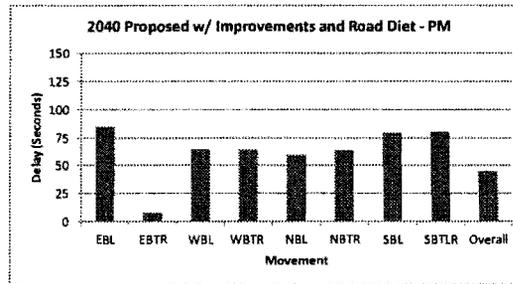
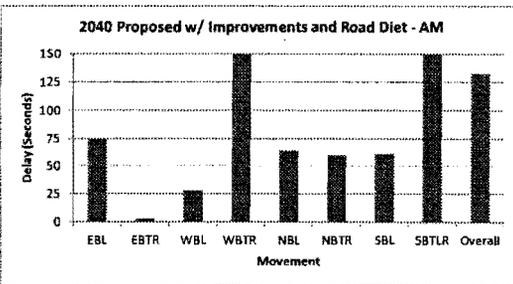
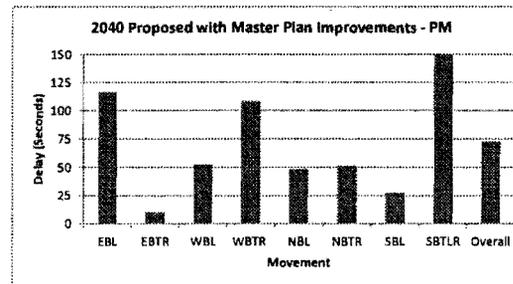
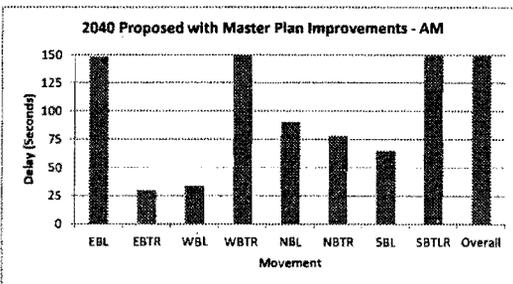
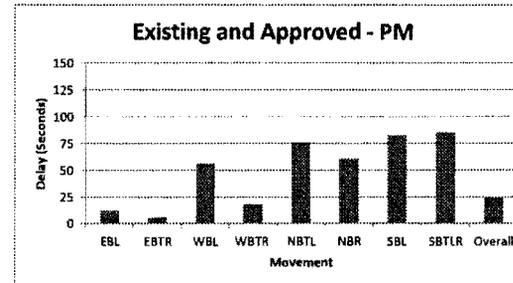
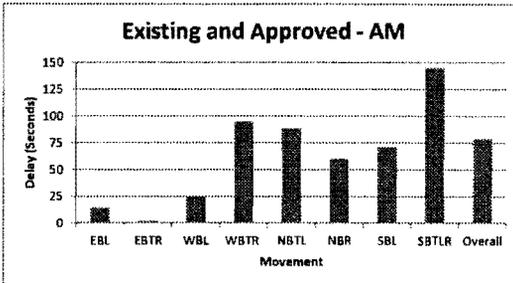
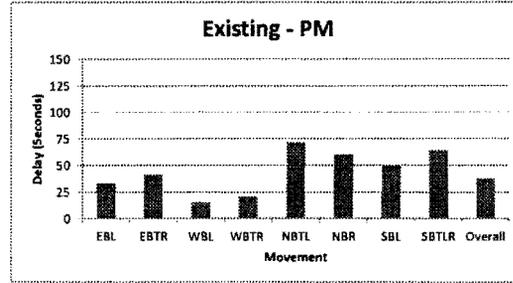
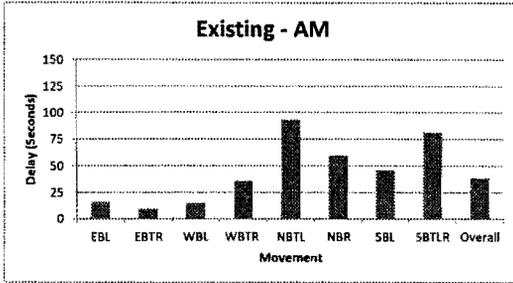
Intersection Delay Summary Tables - Georgia Ave and Glenallan Ave



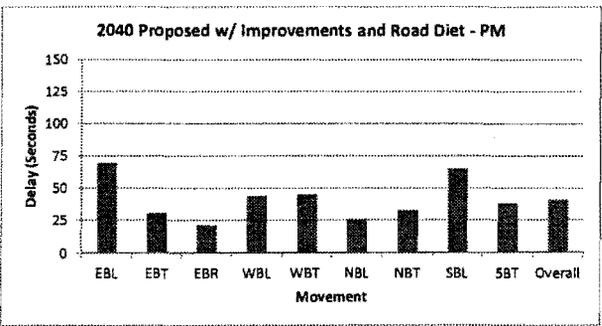
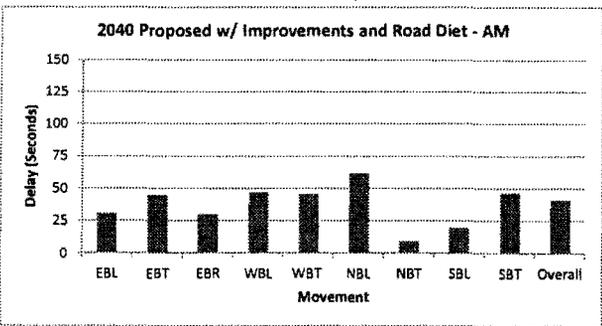
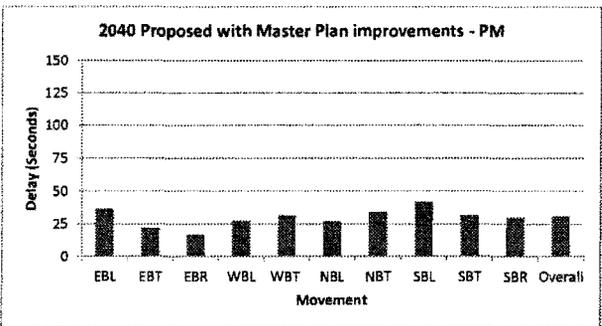
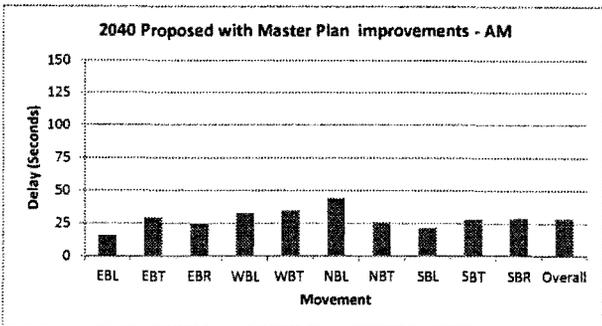
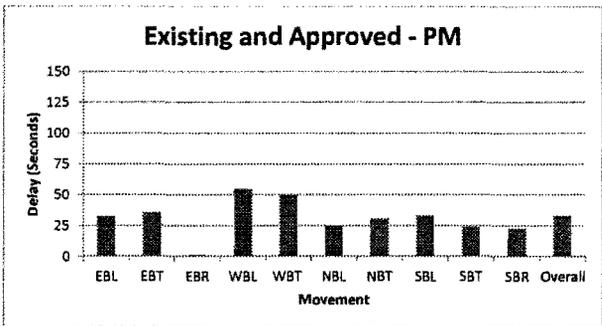
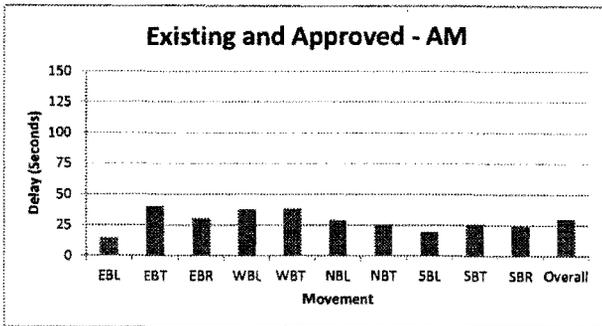
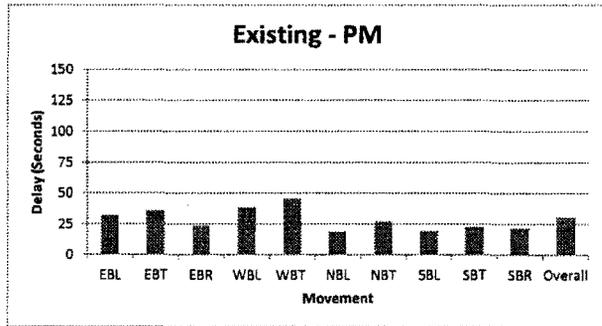
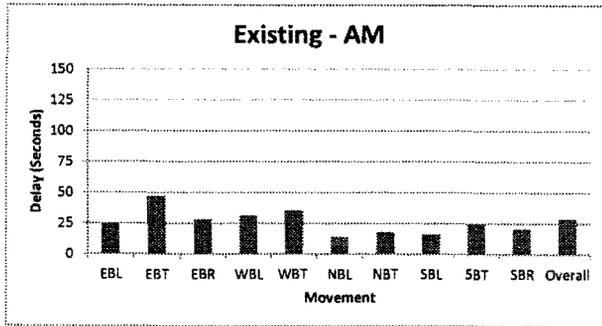
Intersection Delay Summary Tables - Georgia Ave and Layhill Rd

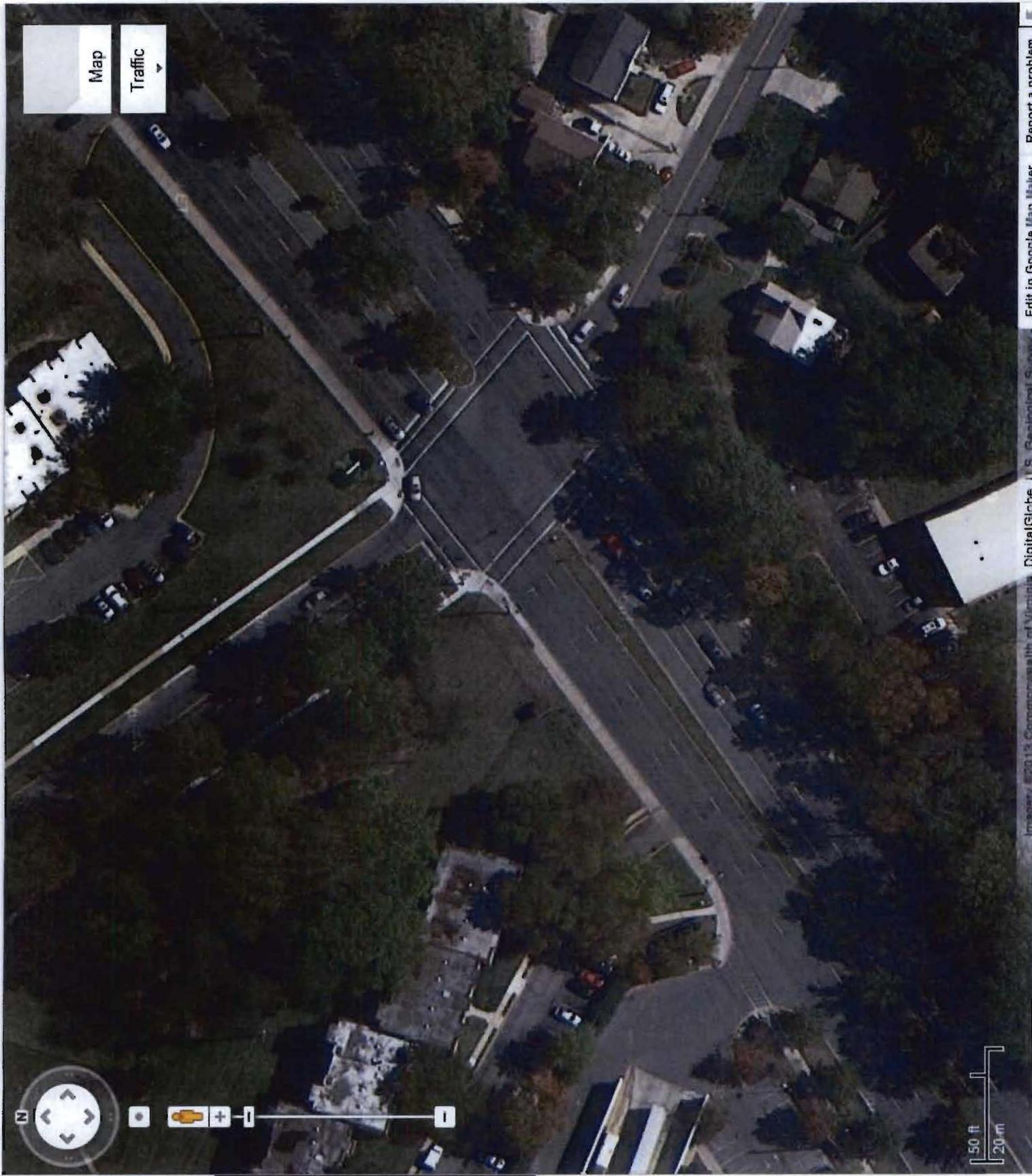


Intersection Delay Summary Tables - Randolph Rd and Glenallan Ave



Intersection Delay Summary Tables - Layhill Rd and Glenallan Ave





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Table 4: Roadway Facility and Segment

Street	From	To	Road Number	ROW (feet)	Lanes*	Road Code Standard
Major Highways						
Old Georgetown Rd (MD 187)	Nicholson Ln	Executive Blvd	M-4	150	6, divided	2008.02 mod.
	Executive Blvd	Rockville Pike (MD 355)	M-4	120	4, divided	2008.01 mod.
Hoya St	Executive Blvd	Montrose Pkwy	M-4a	120	4, divided	2008.01 mod.
Rockville Pike (MD 355)	Sector Plan southern boundary	Sector Plan northern boundary	M-6	150 (162**)	6, divided	2008.02 mod.
Arterials						
Montrose Pkwy	Hoya St	Sector Plan eastern boundary	A-270	300	4, divided	2007.01 mod.
Randolph Rd	Montrose Pkwy	Plan eastern boundary	A-90	100	4	2004.01 mod. / 2004.28 mod.
Nicholson Ln	Old Georgetown Rd (MD 187)	Sector Plan eastern boundary	A-69	90	4	2004.02 mod. 2004.26 mod.
Business Roads						
Chapman Ave (Maple Ave)	Marinelli Rd	Old Georgetown Rd	B-12	70	2	2005.02
	Old Georgetown Rd	Montrose Pkwy	B-12	70	2	2005.02
Citadel Ave/Boylston St	Nicholson Ln	Old Georgetown Rd	B-4	70	2	2005.02
Edson Ln	Woodglen Dr	Rockville Pike (MD 355)	B-5	70	2	2004.21 mod. / 2005.02 mod.
Executive Blvd Extended	Marinelli Rd	Nebel St Extended (B-5)	B-7	80	4	2004.01
Huff Ct/ Huff Ct Extended	Executive Blvd Extended	Nicholson Ln	B-4	70	2	2005.02
Huff Ct/ Huff Ct Extended***	Nebel St Extended (B-5)	Executive Blvd Extended	B-4	70	2	2005-02
Station St	Marinelli Rd	Old Georgetown Rd	B-11	70	2	2005.02
Marinelli Rd	Executive Blvd	Nebel St	B-6	90	4	2005.03 mod.
Market St	Old Georgetown Rd (MD 187)	Rockville Pike (MD 355)	B-10	70	2	2005.02
McGrath Blvd	Rockville Pike (MD 355)	Wentworth Pl (B-13)	B-10	70	2	2005.02
Mid-Pike spine street	Marinelli Rd	Old Georgetown Rd (MD 187)	B-15	80	4	2004.01
	Old Georgetown Rd (MD 187)	New Street (Mid-Pike rung) (B-16)	B-15	70	2	2005.02
Nebel St Extended	Randolph Rd	Plan northern boundary	B-5	80	4	2004.24 mod.
Nebel St	Nicholson Ln	Randolph Rd	B-5	80	2	2004.24 mod.
Nebel St Extended	Rockville Pike (MD 355)	Nicholson Ln	B-5	80	2	2004.01 mod. 2005.02 mod.
new street (Mid-Pike rung)	Hoya St	Rockville Pike (MD 355)	B-16	80	2	2005.02 mod.
Nicholson Ct (realigned)	Nebel St Extended	900 feet east of Nebel St Extended	B-14	70	2	2005.02
Old Georgetown Rd	Rockville Pike (MD 355)	Nebel St	B-2	90	4	2004.02 mod. / 2005.03 mod.
Security Ln/Security Ln Extended	Woodglen Dr	Huff Ct Extended (B-4)	B-17	70	2	2005.02
Wentworth Pl	Marinelli Rd	Nebel St	B-13	70	2	2005.02
Woodglen Dr	Edson Ln	Nicholson Ln	B-3	70	2	2005.02 mod.
Woodglen Dr ***	Nicholson Ln	Marinelli Rd	B-3	60	2	2005.02 mod.
Woodglen Dr ***	Marinelli Rd	Mid-Pike Rung (B-16)	B-3	70	2	2005.02 mod.
new street ***	Chapman Ave	Nebel St	B-18	70	2	2005.02
new street ***	Nicholson Ln	Executive Blvd Extended	B-19	70	2	2005.02

*The number of planned through travel lanes for each segment; not including turning, parking, acceleration, deceleration, or other auxiliary lanes.

** The Rockville Pike 150-foot right-of-way can be expanded to 162 feet (additional feet to be obtained through reservation).

*** New streets B-18, B-19, Huff Court Extended (B-4), and the portion of Woodglen Drive (B-3) north of Nicholson Lane may be constructed as private streets subject to use easements meeting the requirements described in the Plan text.

"mod." indicates that some modification is needed to the referenced design standard to reflect planned elements such as transit priority, bike lanes, or turn lanes.

The target speed for all master planned roadways in the Plan area is 25 m.p.h., except for Montrose Parkway with a target speed of 35 m.p.h. in the Plan area.

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