- Relocate the Public Service Training Academy (PSTA);
- Fund the CCT from the Shady Grove Metro Station to Belward property in the County's six-year Capital Improvement Program (CIP) or State Consolidated Transportation Plan (CTP);
- Fund the LSC Loop trail in the County's six-year CIP;
- Construct and open to traffic a least one public street connection across both the Belward property and the PSTA to provide a direct connection between Key West Avenue, Muddy Branch Road, and Great Seneca Highway and;
- Document a five percentage point increase over the baseline for the non-auto driver mode share.

Stage 2 allows up to 12 million square feet (including existing and pipeline development) of non-residential development recommended by this Plan.

Stage 3

Before Stage 3 begins, the following actions must take place:

- Begin operating the CCT from the Shady Grove Metro to Clarksburg;
- Determine the need for an elementary school in LSC West (on the PSTA site);
- Document a 15 percentage point increase over the baseline for non-auto driver mode share and;
- Fully find the widening of Key West Avenue and the interchanges the LSC area, or transportation projects providing equivalent mobility, in the County's six-year CIP or the State CTP.

Stage 3 allows up to 15 million square feet (including existing and pipeline development) of non-residential development.

Plan Evaluation Six Years After Adoption

State law requires revisiting master plans every six years. This Plan's review will be particularly important in assessing how the area is developing, impacts on infrastructure delivery, and if the vision is being achieved. The review of the Plan should examine:

- the ratio of jobs to housing – are local workers occupying the housing?;
- the built form's evolution;
- absorption rates to determine the rate of needed infrastructure delivery;
- costs to the County;
- the CCT's delivery schedule;
- traffic generation and roadway performance and;
- the area institutions' investment in the Plan's vision.

3. Transportation/Land Use Balance

The Gaithersburg West Master 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 alternative local land use scenarios analyzed.

This Plan establishes a new LSC Policy Area for the LSC Central, LSC West and LSC Belward transit station areas, with policy attributes the same as for the Germantown Town Center Policy area.

Figure 20 shows how the Plan's proposed level and mix of development in the LSC Policy Area.

Figure 20: LSC Policy Area Land Use

Area	Acres	Existing		Future	
		Jobs	HH	Jobs	HH
LSC Central, West, Belward	567	9,200	0	44,600	4,525

A. Measures of Effectiveness

The analysis of alternative development scenarios considers three levels of transportation impacts:

- An areawide mobility analysis indicates the degree to which the alternative local 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 alternative land use or transportation changes affect congestion hot-spots within the LSC area, and
- 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). Both PAMR and LATR are summarized below and detailed background information is available on the Department's website, www.montgomeryplanning.org

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B. Policy Area Mobility Review

Since the early 1980s, every master plan has considered the "balance" between land use and transportation using an assessment of areawide conditions forecast for end-state conditions for the plan. Policy Area Mobility Review is the current measure of areawide transportation adequacy, introduced into the County Growth Policy in 2007. It is similar in nature to the Policy Area Transportation Review measure that was an element of the Growth Policy from 1982 to 2003.

PAMR provides a measure of transportation system adequacy considering Relative Transit Mobility and Relative Arterial Mobility for each of the County's 21 policy areas. PAMR is used in the implementation of the Adequate Public Facilities Ordinance (APFO) to forecast conditions considering the County's pipeline of approved development and near-term transportation system improvements for which funding is committed during the next four years.

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. Through PAMR, the County Council has established transit and arterial level of service (LOS) standards for each policy area by considering areawide adequacy on two scales:

- Transit LOS is established by considering **relative transit mobility**, defined as the relative speed by which journey to work trips can be made by transit as opposed to by auto, and

- Arterial LOS is established by considering **relative arterial mobility**, defined as the relative speed by which auto trips move during peak congestion periods as compared to the free-flow speed.

Relative transit mobility 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 trip takes more than an hour longer to make by transit than by single-occupant auto.

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

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 end-state land use and transportation recommendations of the Master Plan are "in balance". Master Plan Study areas typically address roadway capacity needs by intersection improvements rather than roadway widening. Therefore, the AGP process has evaluated Master Plan Study Areas in conjunction with the master plan and policy area surrounding these areas.

The LSC area is located within and comprises a major portion of the R & D Village Policy Area. Figure 21 shows the forecast Policy Area Mobility Review conditions for all Policy Areas in the County for 2030 assuming the Gaithersburg West Master Plan "High" Scenario with a 32.5% NADMS. Figure 22 provides a tabular summary of the supporting travel data, 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, as indicated in Figure 21, the R & D Village Policy Area is forecast to operate at:

- Relative Transit Mobility of 63% (LOS C – between 60% and 75%)
- Relative Arterial Mobility of 40% (LOS D – between 40% and 55%)

The current Growth Policy requires that all Policy Areas have a Relative Arterial Mobility of at least 40%, or LOS D conditions, regardless of the level of transit service provided. The PAMR results derived from the analysis of the scenario described above just meets this threshold.

It should be noted that the PAMR analyses performed thus far in support of the Plan has evaluated a **range** of scenarios . The demographics associated with the "High" Scenario reflect the **upper bound** of the demographic scenarios tested in terms of intensity of development and resultant travel demand. The level of development reflected in the **Plan-recommended** scenario is less intense than that assumed in the "High" Scenario. Therefore, staff is confident that the Plan-recommended scenario will be "in balance" from a Master Plan perspective.

Figure 21: Policy Area Mobility Review Chart-2030

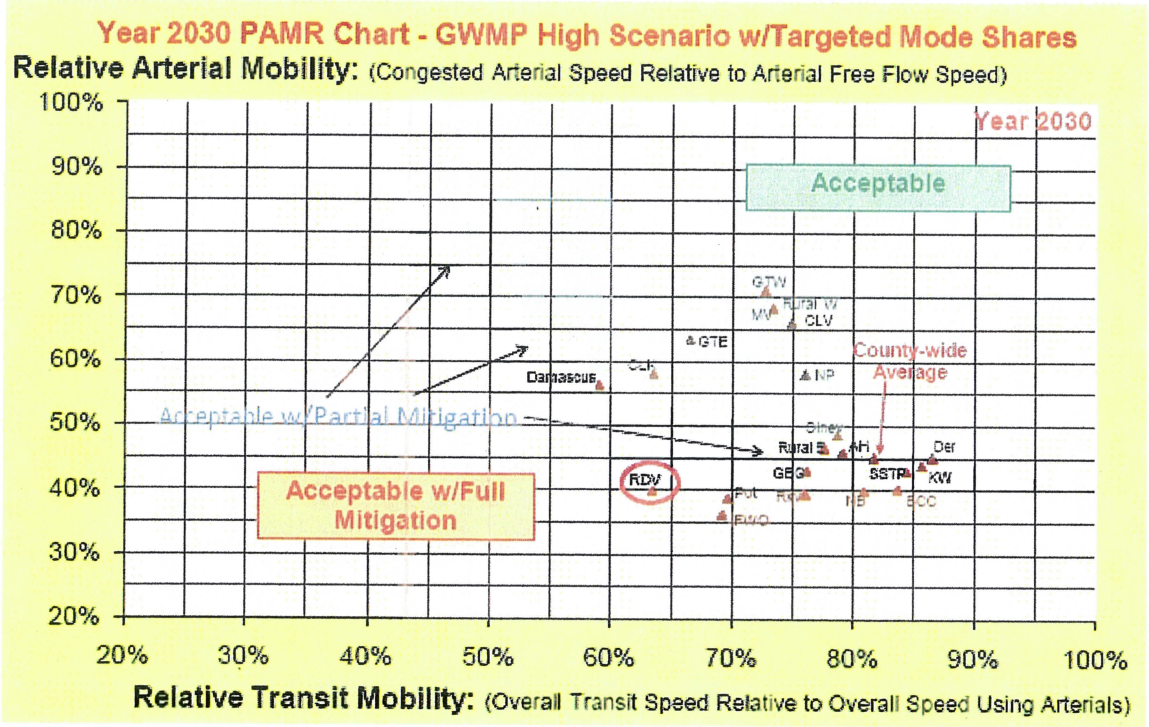

Figure 22: Policy Area Mobility Review Table-2030

Derivation of Year 2030 PAMR Results by Policy Area - Gaithersburg West Master Plan "High" LU Scenario w/TDM Mode Shares)

				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	189,868	5,783	12,626	32.8	15.0	46%	40.9	51.8	79%
Bethesda/Chevy Chase	396,854	15,574	38,863	25.5	10.2	40%	31.1	37.2	84%
Clarksburg	108,964	3,628	6,267	30.0	17.4	58%	38.1	59.9	64%
Cloverly	95,462	2,356	3,570	40.5	26.7	66%	44.0	58.8	75%
Damascus	90,837	2,255	4,009	40.3	22.7	56%	48.4	82.1	59%
Derwood/Shady Grove	140,087	4,982	11,055	28.1	12.7	45%	37.5	43.3	87%
Fairland/White Oak	384,192	10,126	28,073	37.9	13.7	36%	40.0	57.8	69%
Gaithersburg City	243,110	8,667	20,190	28.1	12.0	43%	34.5	45.4	76%
Germantown East	105,604	3,565	5,632	29.6	18.8	63%	36.5	54.8	67%
Germantown West	154,896	5,060	7,123	30.6	21.7	71%	36.5	50.2	73%
Kensington/Wheaton	465,588	14,581	33,389	31.9	13.9	44%	37.0	43.3	85%
Montgomery Village/Airpark	142,629	4,726	6,942	30.2	20.5	68%	41.3	56.3	73%
North Bethesda	237,712	9,980	25,052	23.8	9.5	40%	30.3	37.5	81%
North Potomac	66,824	2,391	4,119	27.9	16.2	58%	39.2	51.6	76%
Olney	168,213	4,749	9,777	35.4	17.2	49%	47.1	59.9	79%
Potomac	203,448	6,118	15,804	33.3	12.9	39%	38.1	54.7	70%
R & D Village	80,760	3,583	8,994	22.5	9.0	40%	26.6	42.0	63%
Rockville City	277,965	12,036	30,617	23.1	9.1	39%	31.5	41.5	76%
Silver Spring/Takoma Park	273,044	10,429	24,351	26.2	11.2	43%	33.4	39.6	84%
Rural East	608,504	15,513	33,414	39.2	18.2	46%	47.1	60.8	77%
Rural West	241,519	6,573	9,621	36.7	25.1	68%	46.5	63.4	73%
Montgomery County Total	**4,676,080**	**152,675**	**339,488**	**30.6**	**13.8**	**45%**	**37.5**	**46.0**	**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

The assessment of Policy Area conditions in Figures 21 and 22 reflect the upper bound of the demographic scenarios tested for the LSC in combination with Round 7.1 demographic forecasts for all other areas in the Washington metropolitan region. 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. Figure 23 provides a summary of year 2005 PAMR conditions by policy area for comparison purposes.

Figure 23: Policy Area Transportation Review Table - 2005

Derivation of Year 2005 PAMR Results by Policy Area

				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/Shady Grove	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	3,572	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	8,702	17,525	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

C. Local Area Transportation Review (LATR)

The Gaithersburg West Master Plan supports redevelopment toward a transit-oriented community with an emphasis on pedestrian accessibility, connectivity, and safety.

The intersection analysis applies the Critical Lane Volume (CLV) methodology from the Department's Local Area Transportation Review (LATR) guidelines. The CLV values are converted to a volume-to-capacity, or V/C ratio, by dividing the current or forecasted CLV values by the applicable congestion standard.

As shown in Figure 24, the County's Growth Policy establishes acceptable levels of congestion for different policy areas 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 1350 CLV (which equates to the middle range of LOS D). In Metro Station Policy Areas, where multiple alternatives to auto transport are provided, the congestion standard is 1800.

The Public Hearing Draft Plan recommends creating a Town Center policy area to encompass the entire LSC district, so that intersections within the district and served by the CCT would have a congestion standard of 1600 CLV. Currently, intersections in the LSC area have a congestion standard of 1450 CLV. Intersections along Shady Grove Road have a congestion standard of 1500 CLV where the Rockville Policy Area overlaps.

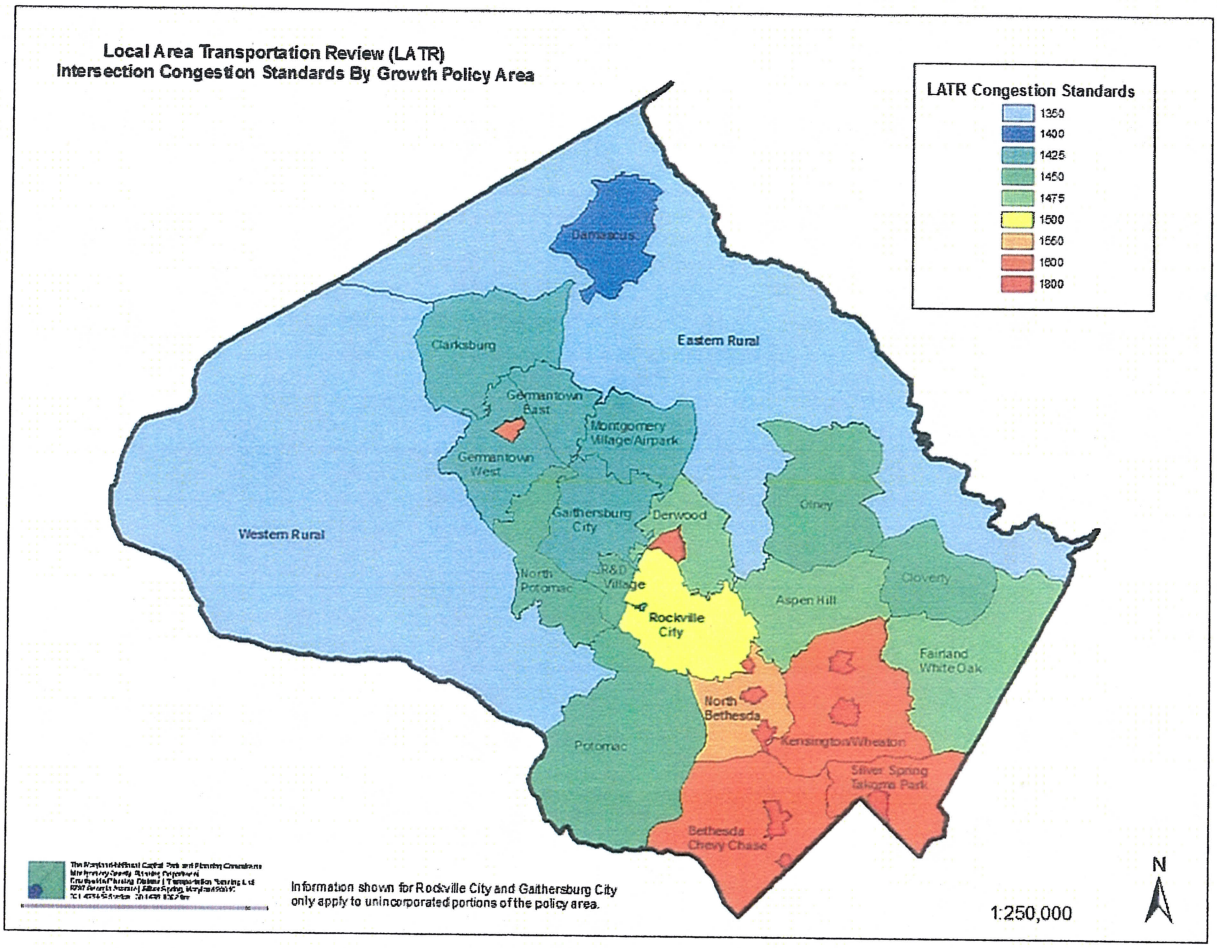

Figure 24: Intersection Congestion Standards by Policy Area

Figure 25 provides a tabular summary of the congested intersections under both existing conditions and the High land use scenario tested for the Draft Plan. (Note that the Draft Plan recommended land use contains approximately one million square feet less commercial use than the High land use scenario tested.) As indicated in Figure 25:

- Currently, all but three of the tested signalized intersections pass the congestion test. Shady Grove Road at Key West Avenue (MD 28), Great Seneca Highway at Muddy Branch Road, and Darnestown Road (MD 28) at Muddy Branch Road exceed either the 1450 or 1600 CLV congestion standards if full buildout of the High Scenario were to occur.
- Nine intersections tested under the "High" land use scenario would exceed the 1600 CLV standard. At four of these locations, forecast CLVs over 2000 (a v/c ratio of 1.25) warrant planning for grade-separated interchanges. This plan also retains the recommendation for an east bound left flyover ramp from Great Seneca Highway to Sam Eig Highway.
- Five of the at-grade intersections tested under the high land use scenario are forecast to exceed the 1600 CLV congestion standard at Plan buildout during either the AM or PM peak hour. Those intersections are Shady Grove Road at

Corporate Boulevard, Key West Avenue and Broschart Road, Darnestown Road and Muddy Branch, Key West Avenue and Omega Drive/Medical Center Drive, and Key West Avenue and Darnestown Road. At these locations, the forecast CLVs range from 1668 to 1721, indicative of delays associated with Metro Station Policy Area development. Grade separated interchanges are not warranted at this level of forecast congestion, but at-grade improvements will be required as development occurs.

At the time of Draft Appendix publication, analysis of the Draft Plan land use on intersection congestion remains in progress. The Draft Plan land use scenario generates about 10% fewer vehicle trips than does the High land use scenario represented in Figure 25. Considering the effect of through traffic, staff expects the CLVs for the Draft Plan scenario to generally be about 5% lower than those shown in Figure 25.

Figure 25: Intersection Analysis

Gaithersburg West Master Plan
Intersection Analyses
Critical Lane Volume and Volume/Capacity Ratios
"High" Land Use Scenario

		Existing Conditions			High Land Use Scenario Tested		
	Intersection	AM	PM	Max V/C	AM	PM	Max V/C
84	Shady Grove @ Corporate	1096	1467	0.92	1388	1668	**1.04**
85	Shady Grove @ Research	1074	1089	0.68	1418	1515	0.95
86	Shady Grove@ Key West	1391	1640	**1.03**	Replaced by Interchange		
87	Shady Grove@ Medical Center Way	744	868	0.54	1023	1086	0.68
88	Shady Grove@ Darnestown	1098	794	0.69	1382	1592	1.00
134	Darnestown @ Travilah	907	974	0.61	1076	1460	0.91
368	Great Seneca @ Darnestown	1028	1009	0.64	1548	1447	0.97
369	Great Seneca (MD 28) @ Key West (MD 28)	1227	1114	0.77	1568	1449	0.98
370	Great Seneca @ Muddy Branch	1654	2179	**1.36**	Replaced by Interchange		
415	Key West (MD28) @ Broschart/Diamondback	1563	1195	0.98	1306	1694	**1.06**
446	Darnestown @ Muddy Branch	1697	1250	**1.06**	1721	1431	**1.08**
466	Key West (MD28) @ Omega/Med Center	1313	1359	0.85	1591	1679	**1.05**
479	Key West (MD28) @ Darnestown	1085	1058	0.68	1521	1718	**1.07**
518	West Montgomery (MD 28) @ Hurley	830	998	0.62	830	998	0.62
519	West Montgomery (MD 28) @ Research	941	1307	0.82	1326	1514	0.95
567	Fields @ Washingtonian	455	747	0.47	482	1168	0.73
568	Fields @ Rio	440	1029	0.64	810	1476	0.92
569	Sam Eig @ Fields	1456	1297	0.91	Replaced by Interchange		
570	Sam Eig @ Diamondback	933	1217	0.76	Replaced by Interchange		
572	Great Seneca (MD 119) @ Sam Eig	1240	1348	0.84	1228	1189	0.77 *
700	West Montgomery (MD 28) @ Key West (MD 28)	942	1304	0.82	1196	1596	1.00
798	Darnestowne @ Gudelsky				1120	931	0.70
901	Great Seneca (MD 119) @ Decoverly				1168	1518	0.95
902	Key West (MD 28) @ JHU				1274	1489	0.93
903	Great Seneca (MD 119) @ Med Center				1201	1451	0.91
904	Shady Grove @ Blackwell				1262	1537	0.96
905	PSTA road @ Key West Avenue				1510	1489	0.94
906	Diamondback @ Decoverly				1145	1361	0.85
907	Muddy Branch @ JHU New				997	1501	0.94
908	Great Seneca (MD 119) @ Blackwell				1296	1548	0.97
909	Research Blvd @ W Gude				1582	1550	0.99

* Reflects planned flyover ramp for east bound left turns