ATTACHMENT F

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

April 16, 2009

MEMORANDUM

TO: Nancy Sturgeon, Master Planner (301.495.1308)
Vision/Community Based Planning Division

VIA: Dan Hardy, Chief DKH
Move/Transportation Planning Division

FROM: Eric Graye, Supervisor (301.495.4632)
Move/Transportation Planning Division

SUBJECT: Worksession #1: Key Transportation Recommendations for the Gaithersburg West Master Plan

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STAFF RECOMMENDATION: Confirm support for key transportation recommendations in the Gaithersburg West Master Plan

A key purpose of the April 23rd worksession is to review the overall transportation/ land use balance for the Gaithersburg West Master Plan and receive support from the Board on the key recommendations. The March 2009 Transportation Appendix, included as an attachment in the packet for this worksession, forms the primary technical material for the April 23rd discussion. The Plan's transportation elements will be discussed in more detail at worksession #2 scheduled on May 14th.

Staff will present the following information on April 23rd; generally covering the key aspects of the material provided in the Transportation Appendix:

- Key transportation-related recommendations for which we are seeking Planning Board support, including
    - The Corridor Cities Transitway (CCT) Realignment,
    - Policy Area Mobility Review (PAMR), and
    - The need to plan for grade-separated interchanges
- Staging
- Alternative land use/TDM scenarios considered
- Alternative Network Opportunities
- Continuing Coordination with Montgomery County DOT and Maryland SHA

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Key Transportation-related Recommendations

Staff seeks Board confirmation on the three key elements of the transportation plan described below:

1. *Alternative Corridor Cities Transitway (CCT) Alignment*

Staff recommends that the Planning Board support a realignment of the Corridor Cities Transitway master plan alignment to establish stations at the LSC Central, LSC West, and LSC Belward communities.

At its southern end, the CCT current master planned alignment (the blue line on Figure 1) goes over I-270 heading west after leaving King Farm and serves the Crown Farm development in the City of Gaithersburg before entering the Gaithersburg West study area as it runs along the south side of Decoverly Drive. The proposed DANAC station is located on Decoverly Drive just before the alignment goes over Great Seneca Highway. The Decoverly Station is located on the west side of Great Seneca Highway.

The red line represents potential modifications to the CCT alignment in this area. The modified alignment within Crown Farm is a result of the local review of the development carried out by the City of Gaithersburg and has been closely coordinated with the Maryland Transit Administration (MTA).

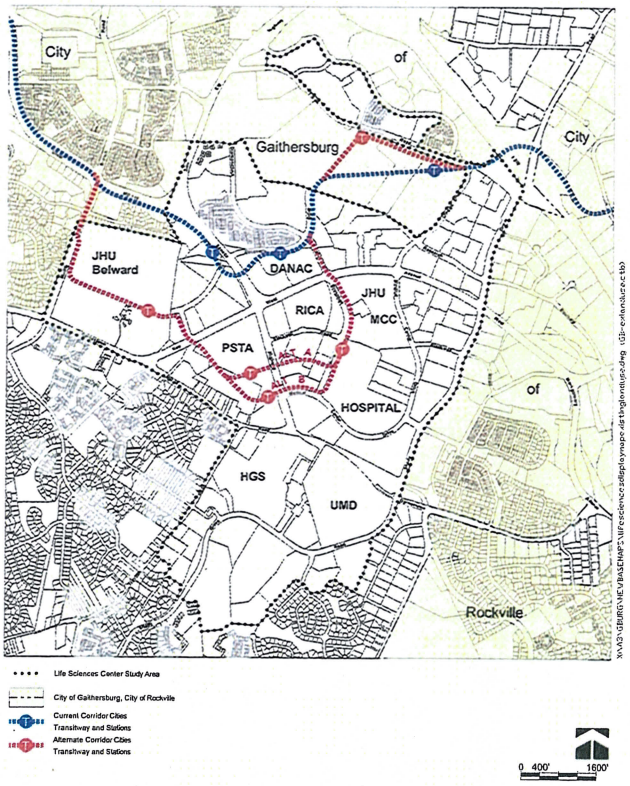

Figure 1: Draft Plan CCT alignment and stations

The Plan recommends the CCT alignment be extended south along Broschart Road to better serve the Shady Grove Life Sciences Center, the land where the Public Service Training Academy is currently located, and the Johns Hopkins University (JHU) Belward Research Campus with stations at each of these locations. Commuter parking would likely be available at no more than two of the stations and more likely, just one of the three stations.

An analysis of this proposed change to the alignment of the CCT is being carried out by the MTA using updated land use forecasts provided by the Planning Department.[1] It is not anticipated that the MTA analysis will be completed until sometime after the release of the Alternatives Analysis / Environmental Assessment in May 2009. Once completed, the analysis is expected to inform the selection of a Locally Preferred Alternative – scheduled to occur sometime in Fall 2009.[2] As a result of the time schedule for the completion of the MTA review process, staff will not have the benefit of the MTA's assessment of the proposed CCT realignment before the transmittal of the Plan to the Council in late July 2009.

The staff believes the proposed alignment shift through the Life Sciences Center (LSC) area will better support the vision for the area, complement the other planning efforts along the I-270 corridor, and better fulfill the potential of the CCT. As a result, it is recommended that the CCT planning move ahead under the assumption that the concept of the proposed modification of the alignment south to serve the LSC area better fulfills the Plan vision – even if it results in the need for additional environmental impact analysis.

It should also be noted that some communities near the proposed change in the alignment have recently requested that other modifications to the alignment on the Belward campus be considered. On a related note, the Universities at Shady Grove (USG) raised the issue of the CCT alignment coming south to serve the USG in the LSC South District. Staff considered this change but supports the Plan-recommended realignment for several reasons, including:

- The USG campus density in the LSC South District is less than the planned density in the LSC Central, LSC west and LSC Belward Districts;
- The additional circuity in the CCT alignment needed to reach the USG campus would increase CCT travel times, reducing CCT attractiveness;
- The rider profile of students may not be a predisposed to transit use as the residents and workers in the LSC Districts located north of Darnestown Road;
- Transit access for students could be provided by extensive shuttle bus services that would accompany the CCT; and
- While pedestrian access across Darnestown Road is an issue, the USG campus is within a reasonable walking distance to the proposed LSC West CCT station.

While potential additional modifications are not currently being studied by the MTA, the staff feels that the dialogue should continue so as not to preclude further consideration at a later date.

2. *Land Use / Transportation Balance as Indicated by Policy Area Mobility Review*

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[1] The forecast provided MTA include updated estimates for Germantown, Twinbrook, and White Flint as well.
[2] Note that the analysis of the alternative alignment effectively expands the scope of the LPA decision to include alignment (master plan or new alignment through LSC area) as well as mode (bus rapid transit or light rail). If the new alignment is chosen as part of the LPA, it is possible the Federal Transit Administration will require the MTA to conduct another supplemental environmental assessment.

Staff recommends that the Board find that the Draft plan provides a balance between land use and transportation and that the general development pattern and transportation recommendations are appropriate.

Council President Andrews has requested that Planning staff evaluate an additional land use scenario that would essentially retain the 1990 Plan levels of commercial development while increasing residential development. His correspondence and the Chairman's response are attached. In summary, the scenario proposed by Mr. Andrews would be similar to the "Low" scenario already analyzed and would not provide sufficient levels of development to achieve the life-science center objectives of the plan. A full analysis of another development scenario would delay this plan delivery and divert resources from other planning efforts underway. Staff does not recommend conducting additional analysis at this time, particularly for an alternative that we do not support. The following paragraphs describe our staff findings that a balance between land use and transportation has been achieved.

The LSC area is located within and comprises a major portion of the R & D Village Policy Area. Figure 2 shows the forecast Policy Area Mobility Review conditions for all policy areas in the County for the year 2030 assuming the Gaithersburg West Master Plan "High" Scenario with a 32.5% Non-auto Driver Mode Share (NADMS). Figure 3 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 2, 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 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. A key supporting element of this finding is the assumption of the three relocated transit stations along the proposed realigned CCT in the LSC area. Absent the reloction of these CCT stations, transportation and land use would be "out of balance" given the land use densities recommended in the Plan.

Figure 2: Policy Area Mobility Review Chart-2030

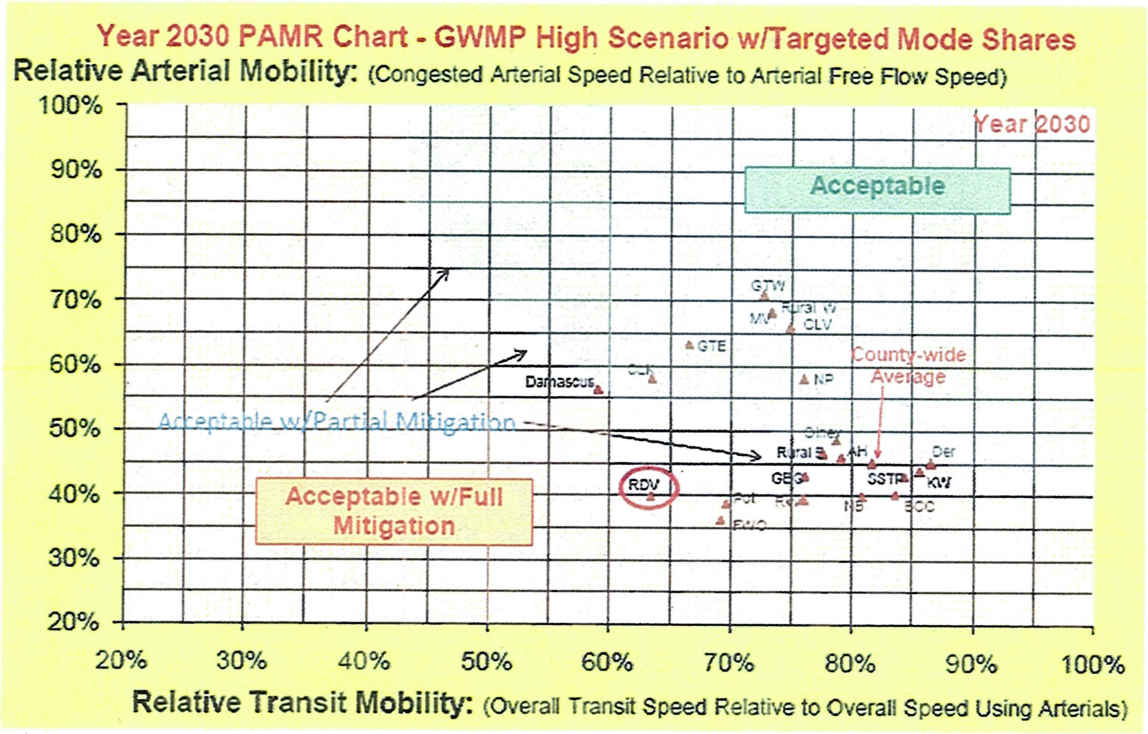


Figure 3: Policy Area Mobility Review Table-2030

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

As mentioned previously, the assessment of Policy Area conditions in Figures 2 and 3 reflect the upper bound of the demographic scenarios tested for the LSC area 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.

3. *Need for Grade-separated Interchanges*

Staff recommends that the Board find that certain grade separated interchanges, including some modifications to interchanges recommended in the 1990 Master Plan, are appropriate tools to sustain full buildout of the Draft plan.

Figure 5: LSC Area Street Network

The Plan's LSC street network is depicted in Figure 5. The pattern of congestion resulting from the Plan-recommended land use indicates that five intersections located either within or in the immediate vicinity of the LSC area may operate at levels of service that warrant grade-separation. These locations are:

- Shady Grove Road and Key West Avenue (MD 28);
- Great Seneca Highway (MD 119) and Key West Avenue (MD 28);
- Great Seneca Highway (MD 119) and Sam Eig Highway;
- Great Seneca Highway (MD 119) and Muddy Branch Road; and
- Sam Eig Highway and Diamondback Road.

Two of the five grade-separated interchanges listed above (i.e., Great Seneca Highway at Key West Avenue and Sam Eig Highway at Diamondback Road) were recommended in the *1990 Shady Grove Study Area Master Plan.*

The Plan **removes** the grade-separated interchange from the intersection at Shady Grove Road and Darnestown Road and from the intersection of Darnestown Road and Wootton Parkway (as recommended in the *1990 Shady Grove Study Area Master Plan*).

Located **outside** the LSC area, the Plan recommends an interchange at Great Seneca Highway and Quince Orchard Road.

It should be noted that these intersection locations share a common feature: they are primarily located along major highways at the periphery of the LSC area. This peripheral congestion is due, in large measure, to a combination of local and through traffic using the major highway network. For example, Great Seneca Highway (MD 119) is a key roadway in the area for both local and through traffic. This roadway connects Germantown to Rockville parallel to I-270, through the LSC area. Therefore, it carries traffic through the area as well as a significant amount of traffic into development located within the LSC. This roadway must serve both types of traffic and its intersections must provide for local access as well as accommodating significant through-flow. While grade-separated interchanges primarily reduce congestion from through traffic, these facilities create limitations on local access (due to spacing requirements and land area taken up for ramp systems). Careful consideration is required to both the needs to reduce through-flow congestion and to preserving local, at-grade access in identifying potential grade separation locations and conceptual interchange design. While Great Seneca Highway may primarily be throughway, it is not a freeway. Grade separations should be designed to balance both land use access and through traffic needs. A key objective of the Plan is reserve prudently sufficient rights-of-way to accommodate grade separations or equivalent at-grade solutions.

The State Highway Administration is concerned about the feasibility, funding, and local municipality support of the transportation system as indicated in their attached April 9 correspondence. We are coordinating with both SHA and Montgomery County DOT as described toward the end of this memorandum. We share the SHA interests and believe most of their technical comments and concerns can readily be addressed. Two concerns in particular will require more focused coordination; definition of the appropriate level of schematic detail for fatal flaw feasibility analysis and coordinating the Plan schedule with the MTA analysis of the CCT alternatives. MTA staff is scheduled to brief the Board on the CCT process and schedule on April 30. In addition, continued coordination is needed with the City of Gaithersburg regarding appropriate levels of connectivity within and between communities in this area of the County; the connectivity concerns discussed during the Crown Farm annexation process regarding dispersal of traffic through the arterial roadway network will need to be revisited.

Figure 6 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 6:

- 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 eastbound to northbound 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.

The Draft Plan land use scenario generates about 10% fewer vehicle trips than does the High land use scenario represented in Figure 6. **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 6.**

Figure 6: Intersection Analysis

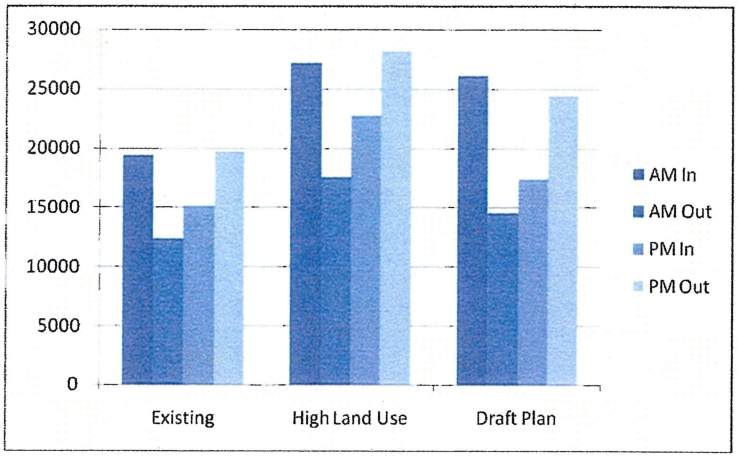
Gaithersburg West Master Plan
Intersection Analyses
Critical Lane Volume and Volume/Capacity Ratios
"High" Land Use Scenario

		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

The Recommendations in the Plan for transportation infrastructure and staging are based on the highest land use scenario tested, the "High" land use scenario. However, subsequent to development of the recommendations in the Plan, a slightly lower density was selected for the Draft Plan. Figure 7 provides a comparison of the "High" and "Draft Plan" trip generation characteristics is included to show the difference.

Figure 7: Draft Plan Trip Generation Comparison



The Existing land uses within the cordon studied generate about 31,700 vehicle trips (both inbound and outbound) in the AM peak hour and 34,900 trips in the PM peak hour.

The "High" land use tested generates 44,700 vehicle trips in the AM peak hour and 50,800 trips in the PM peak hour.

Comparatively, the Draft Plan generates 40,600 vehicle trips in the AM peak hour and 41,700 in the PM peak hour, about 10% less than the "High" land use scenario.

The Draft Plan also recommends a slightly lower Non-Auto Driver Mode Share (NADMS) of 30%, rather than the "High" land use scenario NADMS of 32.5%, resulting in slightly higher per-square foot trip rates per square foot of use modeled. The current NADMS in the LSC area is roughly 16%. Staff considers a 30% NADMS goal in the LSC area achievable for several reasons, including: (1) the realignment of the CCT thorough the LSC; (2) the concentration of planned development within walking distance of the three proposed CCT stations in the LSC; (3) complementary feeder-bus service to the proposed CCT stations; and (4) implementation of an active transportation demand management (TDM) program in the LSC (including employer-sponsored subsidized transit fares, parking management strategies and staggered work hours). By comparison, NADMS recommendations in White Flint and the Silver Spring CBD (both serviced by the Metro Red Line), are 37% and 50%, respectively.

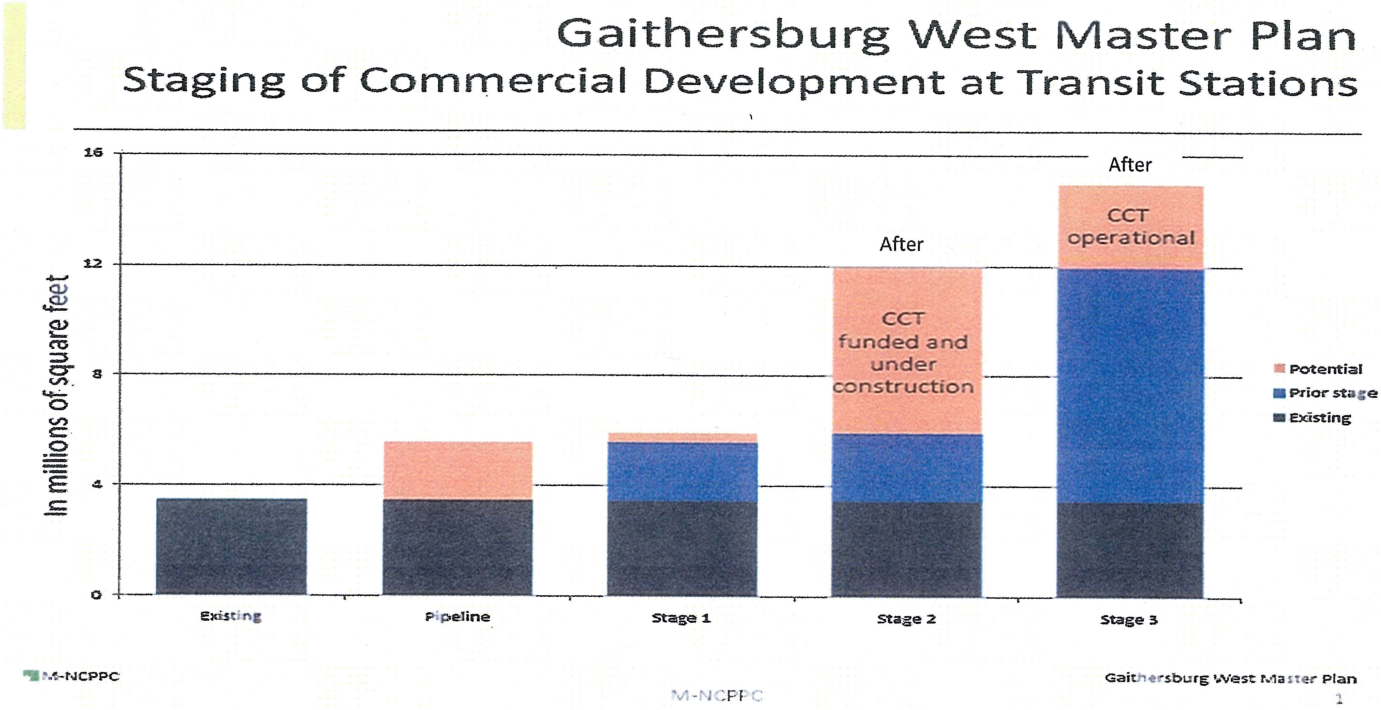
Staging

The Draft Plan recognizes that implementation of Plan buildout will likely take several decades. The transportation system improvements need to be phased in over time to prioritize and identify funding for major investments.

The Gaithersburg West Master Plan recommends a staged implementation that requires the completion of certain transportation infrastructure within each stage and a progressive

achievement toward the planned NADMS in stages generally proportional to the assumed land use growth (see Figure 8).

Figure 8: LSC Area Staging



Approximately 3.7 million square feet of non-residential development is approved and un-built in the LSC pipeline of development. This increment of development is not subject to the Plan's staging requirements as long as a project's Preliminary Plan continues to be valid. The following staging requirements apply to the LSC Central, West, and Belward Districts.

Stage 1

Before Stage 1 begins, the following actions must take place:

- Fund and begin operating the Greater Shady Grove Transportation Management District (TMD);
- Create a LSC policy area with urban standards and characteristics;
- Document the baseline of non-auto driver mode share (estimated at 16%) through monitoring and traffic counts and;
- Include the entirety of the Rickman property, located along Travilah Road, into the new LSC Policy Area.

Stage 1 allows up to 6 million square feet (including existing and pipeline of development) of non-residential development recommended by this Plan. This increment of development is calculated at the low end of density that reasonably supports higher investment in transit such as Bus Rapid Transit, one of the modes being considered for the CCT. The initial review of this Plan's land use recommendations, facility needs, and staging is expected to occur during Stage 1.

Stage 2

Before Stage 2 begins, the following actions must take place:

- 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.

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.

Alternative Land Use/TDM Scenarios Considered

Figure 9 shows the LSC Policy Area land use and Transportation Demand Management (TDM) alternatives considered for the development of the Gaithersburg West Master Plan.

Figure 9: LSC Policy Area Land Use Scenarios Considered

Land Use Scenarios	Commercial (SF)	DUs	Accelerated TDM Assumed?
Existing	3.5M	0	No
1990 Plan – "Low" Scenario	7.2M	500	No
"Medium" Scenario	12.4M	4,800	Yes
"High" Scenario	16.1M	9,700	Yes
"Recommended" Scenario	15.2M	4,525	Yes