

September 9, 2008

MEMORANDUM

TO: Sue Edwards, I-270 Corridor Team Leader
Community-based Planning

VIA: Dan Hardy, Acting Chief
Transportation Planning

FROM: Katherine Holt, Senior Planner *KH*
Transportation Planning

SUBJECT: Germantown Master Plan
Worksession #2
Transportation Discussion Topics

Worksession #2 for the Germantown Master Plan on September 25 will provide an opportunity for staff to solicit Planning Board guidance on several overarching policy questions relating to transportation system design, performance, and implementation. We will use the discussion at Worksession #2 to inform subsequent worksessions in which site-specific transportation recommendations will be addressed.

This memorandum summarizes the discussion topics for Worksession #2:

1. How do we define and achieve an overall balance between land use and transportation?
2. How should the Corridor Cities Transitway serve the Plan area?
3. Are planned pedestrian and bicycle facilities sufficient?
4. How should the relationship between M-83 and MD 355 be reflected in the Plan?
5. How should transportation performance be reflected in the staging plan?

Attachment D summarizes Public Hearing testimony on transportation issues, with brief responses for items included in this memorandum.

1. TRANSPORTATION / LAND USE BALANCE

On September 4, the Planning Board focused on three basic questions from the public hearing testimony that reflect the balance between land use and transportation:

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- Are the levels of forecast multimodal mobility in the Public Hearing Draft Plan sufficient to support the recommended land use?
- Would greater levels of congestion or limited parking help reduce traffic volumes?
- Should the Public Hearing Draft Plan recommend changes to the mobility objectives applied to Germantown?

The following paragraphs provide affirmative recommendations on these questions.

Each master plan adopted by the County Council in the past two decades has assessed whether or not the land use and transportation system are “in balance”. The term balance has traditionally meant that the forecasted end-state land use in the plan area could be supported by the end-state transportation system and satisfies the Adequate Public Facilities (APF) requirements of the Growth Policy in place at time of plan end-state analysis.

Transportation system capacity for master plans includes forecasting future travel demand, a process that includes two levels of analysis consistent with the current Growth Policy transportation reviews:

- A regional travel demand analysis is used to develop baseline conditions reflecting planned land use and transportation changes outside the Germantown Master Plan area. This effort produces Relative Transit Mobility (RTM) and Relative Arterial Mobility (RAM) forecasts for the year 2030 for a long-range Policy Area Mobility Review (PAMR)
- A local area model analysis is used to evaluate more detailed alternative land use and transportation options within the Master Plan area. This effort produces forecast intersection volume-to-capacity (V/C) ratios for the year 2030 using the Critical Lane Volume (CLV) technique for a comprehensive plan area Local Area Transportation Review (LATR)

Policy Area Mobility Review

From a Policy Area Mobility Review (PAMR) perspective, we conclude from the end-state analysis that the proposed land use and transportation system are in balance, due in large part to implementation of regional facilities already in the master plan including

- I-270 widening,
- the Corridor Cities Transitway (CCT),
- Midcounty Highway Extended (M-83), and
- MD 355 widening to six lanes.

As indicated in Figure 1, the Germantown master plan area includes portions of three Policy Areas:

- Portions of the Germantown West Policy Area,

- The entire Germantown Town Center Policy Area, which is surrounded by the Germantown West Policy Area and incorporated into Germantown West for PAMR purposes,
- Portions of the Germantown East Policy Area

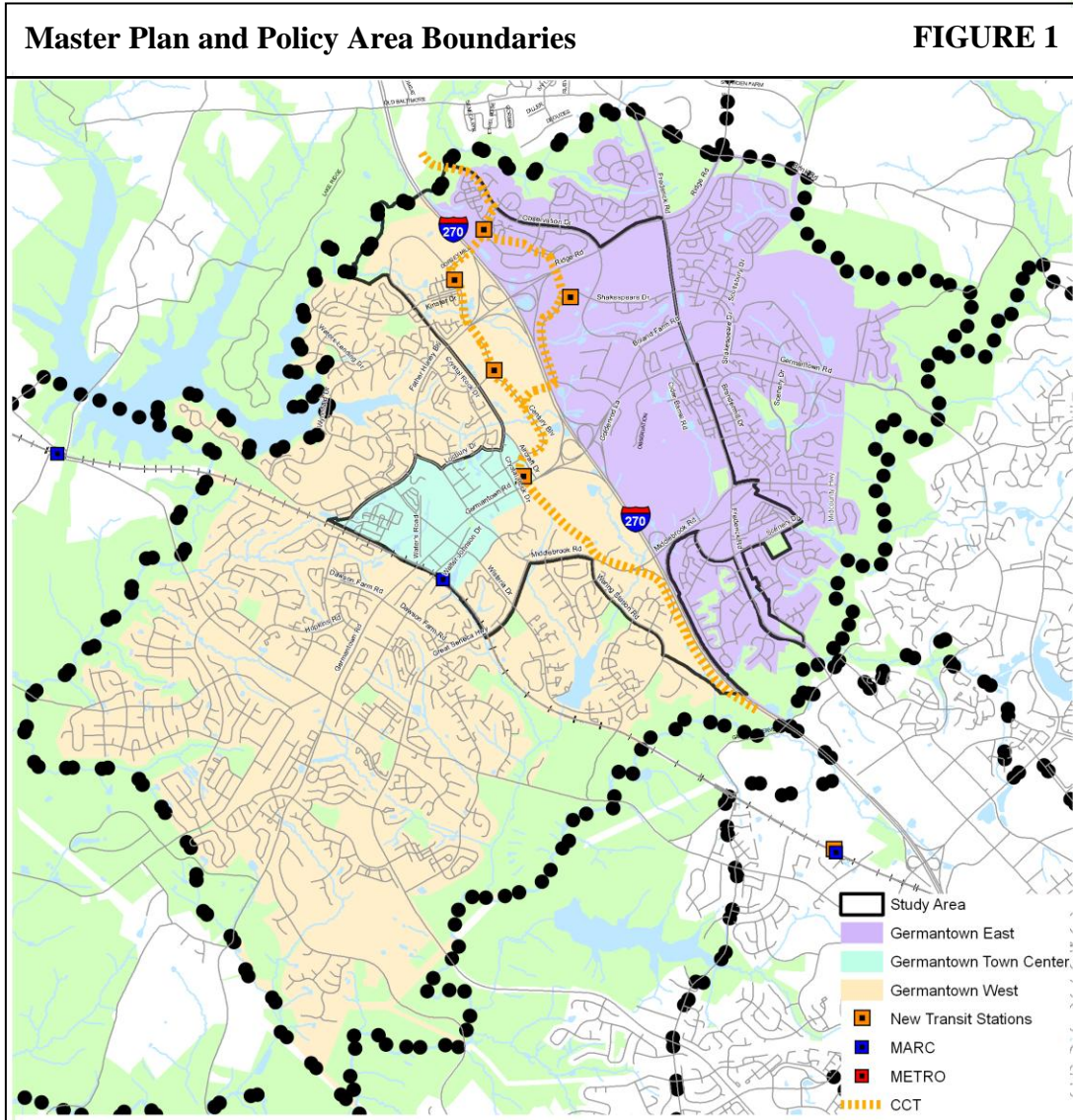
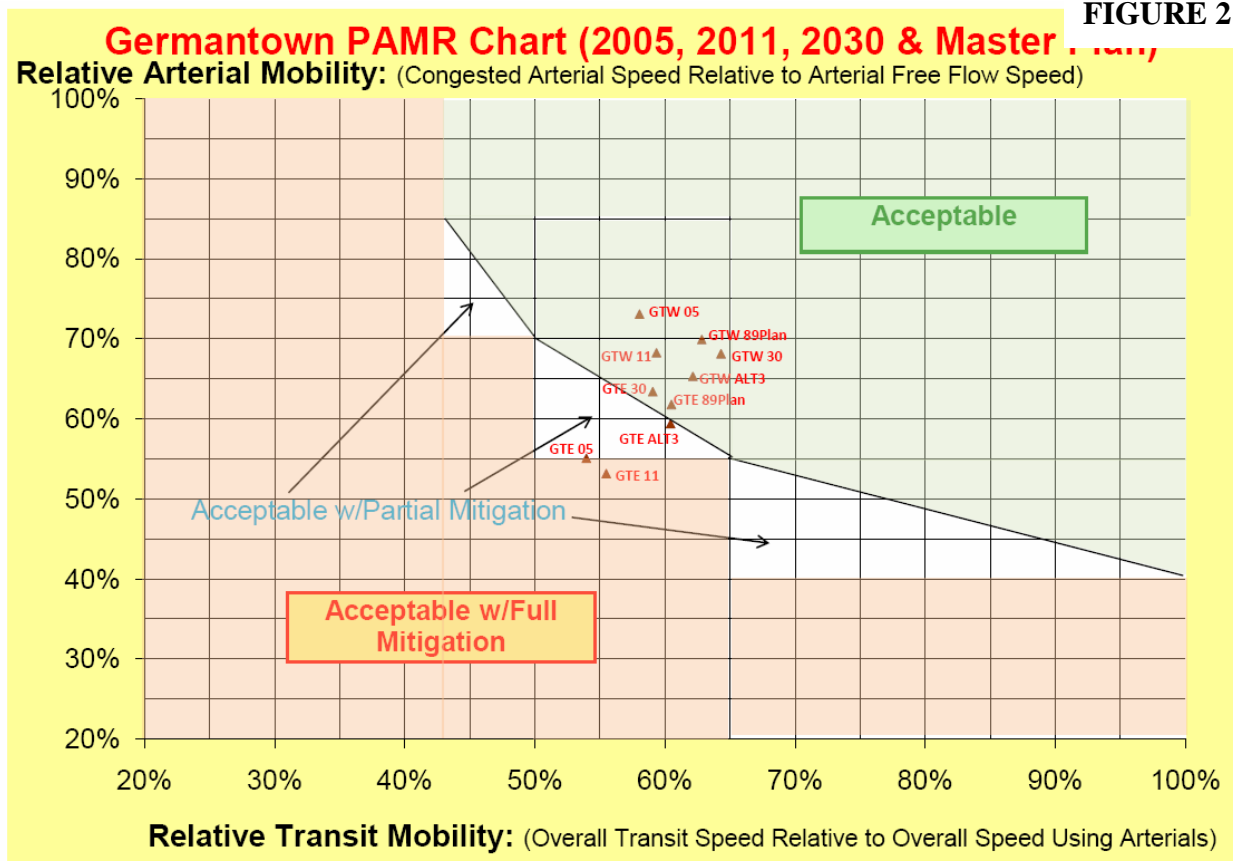


Figure 2 shows the results of the PAMR analysis, comparing conditions for 2005, 2011, and Alternative 3, the working title for the highest amount of land use tested during alternatives analysis. The plan’s recommended land use is commensurate with, but slightly lower than, that tested as Alternative 3. Figure 2 uses the following nomenclature to identify forecast Relative Transit Mobility (RTM) and Relative Arterial Mobility (RAM) conditions:

- GTE refers to the Germantown East Policy Area
- GTW refers to the Germantown West Policy Area (including the Germantown Town Center Policy Area)

- 05 refers to year 2005 conditions
- 11 refers to forecast year 2011 conditions, per the 2007-2009 Growth Policy
- 30 refers to forecast year 2030 conditions assuming Round 7.1 cooperative forecast land uses
- 89 Plan refers to forecast year 2030 conditions assuming the yield from the 1989 Germantown Master Plan, and
- ALT3 refers to the current staff recommendations.

The objective of the master plan balance assessment is to ensure that the end-state conditions are acceptable with either partial or full mitigation. In other words, the GTW ALT3 and GTE ALT3 markers both need to be “above the stairstep” and in either the white or green areas on the chart in Figure 2. The PAMR analysis allows us to conclude that while the recommended land use and transportation system is slightly more congested than that in the 1989 Plan, that both the Germantown East and the Germantown West Policy Areas have adequate mobility scores and that the recommended plan therefore has a balance between land use and transportation.



Gtown_PAMR_Mitigation_temporal\Gtown_PAMR_Chart_Mitigation

12/14/2007

Local Area Transportation Review

Critical lane volume (CLV) is an analysis used for existing signalized intersections in the area to determine the level of intersection congestion. CLV is a calculation for intersections that

evaluates conflicting movements such as through traffic and traffic turning left against oncoming traffic. For the Germantown area, there are two different policy standards of congestion. The Germantown Town Center area has a congestion standard of 1600, while the rest of Germantown has a congestion standard of 1425. CLVs listed for the study area in existing conditions can be seen in **Table 1** with a star noting CLVs congestion standards of 1600 and shading illustrating over the congestion standard. The 2030 column “without turn lanes” represents CLVs with future year traffic volumes on the road, but did not include any localized intersection improvements.

Table 1

	Existing			2030 network without turn lanes			2030 network with turn lanes		
	AM	PM	V/C	AM	PM	V/C	AM	PM	V/C
Middlebrook/Crystal Rock*	812	715	0.51	2013	1992	1.26	1602	1631	1.02
Middlebrook/GS HWY	795	984	0.69	1104	1317	0.92	905	1317	0.92
GS HWY/WISTERIA	637	877	0.62	1144	1444	1.01	930	1110	0.78
MD 118 /DOE*	880	1080	0.68	1521	1983	1.24	1286	1501	0.94
MD 118 /Crystal Rock*	887	1477	0.92	1864	1790	1.17	1540	1645	1.03
Middlebrook/MD 118*	863	1288	0.81	1559	1905	1.19	1406	1519	0.95
WISTERIA/MD 118*	843	1356	0.85	1136	1359	0.85	888	948	0.59
MD 355/Middlebrook	992	1374	0.96	1258	1750	1.23	1212	1750	1.23
Father Hurley/Middlebrook*	684	720	0.45	1471	1404	0.92	887	825	0.55
Waring Station/Middlebrook	959	1035	0.73	1202	1245	0.87	1040	1055	0.74
MD 355/MD 118	1565	1390	1.10	1985	1897	1.39	1637	1555	1.15
Observation/MD 118	636	863	0.61	1571	1819	1.28	1386	1509	1.06
MD 355/Shakespeare	1269	1101	0.89	1629	1519	1.14	1516	1217	1.06
MD 355/Henderson Corner	1088	854	0.76	1341	1306	0.94	1341	1112	0.94
MD 355/Ridge Rd	1011	1496	1.05	1666	1902	1.33	1364	1616	1.13
Observation/Ridge	1160	1427	1.00	1750	1866	1.31	1172	1409	0.99
Crystal Rock/Father Hurley	984	956	0.69	2221	2111	1.56	1536	1492	1.08
Crystal Rock/Kinster	401	550	0.39	1075	1058	0.75	1075	1058	0.75
Crystal Rock/Cloverleaf Center	620	546	0.44	808	1173	0.82	808	1173	0.82
MD 118/Bowman Mill				711	910	0.64	711	910	0.64

0-0.8 = green; 0.8-1.0 = yellow; 1.0-1.2 = orange; 1.2+ = red;

As shown in Figure 3, there are several locations where we forecast localized congestion problems that are generally either related to I-270 access points or locations where major highways intersect. The proposed partial interchange at I-270/Dorsey Mill and several new master planned streets break up the superblocks, with additional connectivity supporting both the distribution of vehicular traffic and accessibility by non-auto modes. The plan recommends interchanges are constructed at the MD 355 intersections with Ridge Road, MD 118, and Middlebrook Road and at the MD 27 intersection with Observation Drive.

The localized congestion problems shown in Figure 3 reflect the current growth policy intersection congestion standards. Figure 4 shows locations where congestion could be alleviated with additional turn lanes, corresponding to the rightmost column in Table 1. The only locations where a V/C ratio greater than 1.1 is forecast for a scenario with turn lanes is at the three intersections along MD 355 where grade-separated interchanges are recommended.

For those intersections where future interchanges are not recommended, full pedestrian accommodation needs to be incorporated within any proposed reconstruction. Travel demand management measures should be considered as the first priority for addressing congestion. In the Plan's urban areas and transit station areas, intersection widening should be considered a last resort, as some transit-oriented development will likely need to be implemented in advance of full CCT implementation.

This plan does not explicitly recommend capacity improvements to achieve the current growth policy intersection congestion standards for three reasons:

- The balance between vehicular congestion and pedestrian accessibility should be made on a case-by-case basis through subdivision cases or facility planning studies as needs arise,
- The level of travel demand forecasting performed for Master Plan analysis is useful for assessing long-term trends, but not for programming 20-year needs on an intersection-specific basis,
- Current growth policy standards are evaluated on a biennial basis and are subject to change during the lifetime of the Master Plan. The next update for Growth Policy will be 2009.

The concern regarding appropriate congestion standards for transit-oriented development in Germantown was a topic of both Planning Board and County Council discussion of the Growth Policy last year. The County Council adopted revisions to the CLV congestion standards for the Germantown plan vicinity in the 2007-2009 Growth Policy as follows:

- The Germantown Town Center Policy Area CLV congestion standard was raised from 1450 to 1600, reflecting that greater congestion levels should be tolerated because overall multimodal mobility will improve with anticipated CCT transit service, and
- The Germantown West and Germantown East Policy Area CLV congestion standards were reduced from 1450 to 1425, reflecting the Council's interest to set higher roadway mobility expectations (i.e., accept slightly less congestion) in much of the upcounty area.

More stringent congestion standards do not necessarily translate into wider roads. The Growth Policy requires the Board to prioritize transportation impact mitigation in the development review process by considering trip reduction strategies, non-auto facilities, and transit service provision in lieu of widening; a philosophy reinforced by the draft Germantown Plan. We will be reviewing all the Growth Policy recommendations during the next several months in preparation for the biennial review of the Growth Policy by the Planning Board and County Council in late spring 2009. This review will provide the opportunity to consider and revise the

definition of adequacy in Germantown on par with adequacy elsewhere in the County; **therefore staff does not recommend changing APF methodologies or standards at this time.**

The consideration of wider intersections in the realm of multiple, competing public policy goals is not new to this Germantown Plan amendment; similar guidance has been incorporated into the analysis and recommendations for recent master plans and sector plans for Silver Spring and vicinity and Shady Grove. In each of these cases, the **County Council has found master plans to be in balance based on areawide network performance, recognizing that some intersections may experience greater levels of congestion than the current growth policy standards.** The Germantown analysis is consistent with our historic practice.

Page 22 of the Draft Plan states that “the intersections with MD 118 should not be widened.” Testimony from the Department of Transportation expressed concern that the presentation of conditions with potential turn lanes is inconsistent with the Plan guidance that MD 118 not be widened. Staff does concur that the statement regarding MD 118 widening is vague, and recommends changing the Plan guidance to:

“Discourage further expansion of MD 118 intersections in the Town Center unless needed for pedestrian safety, improved bus access, or bicycle access and safety.”

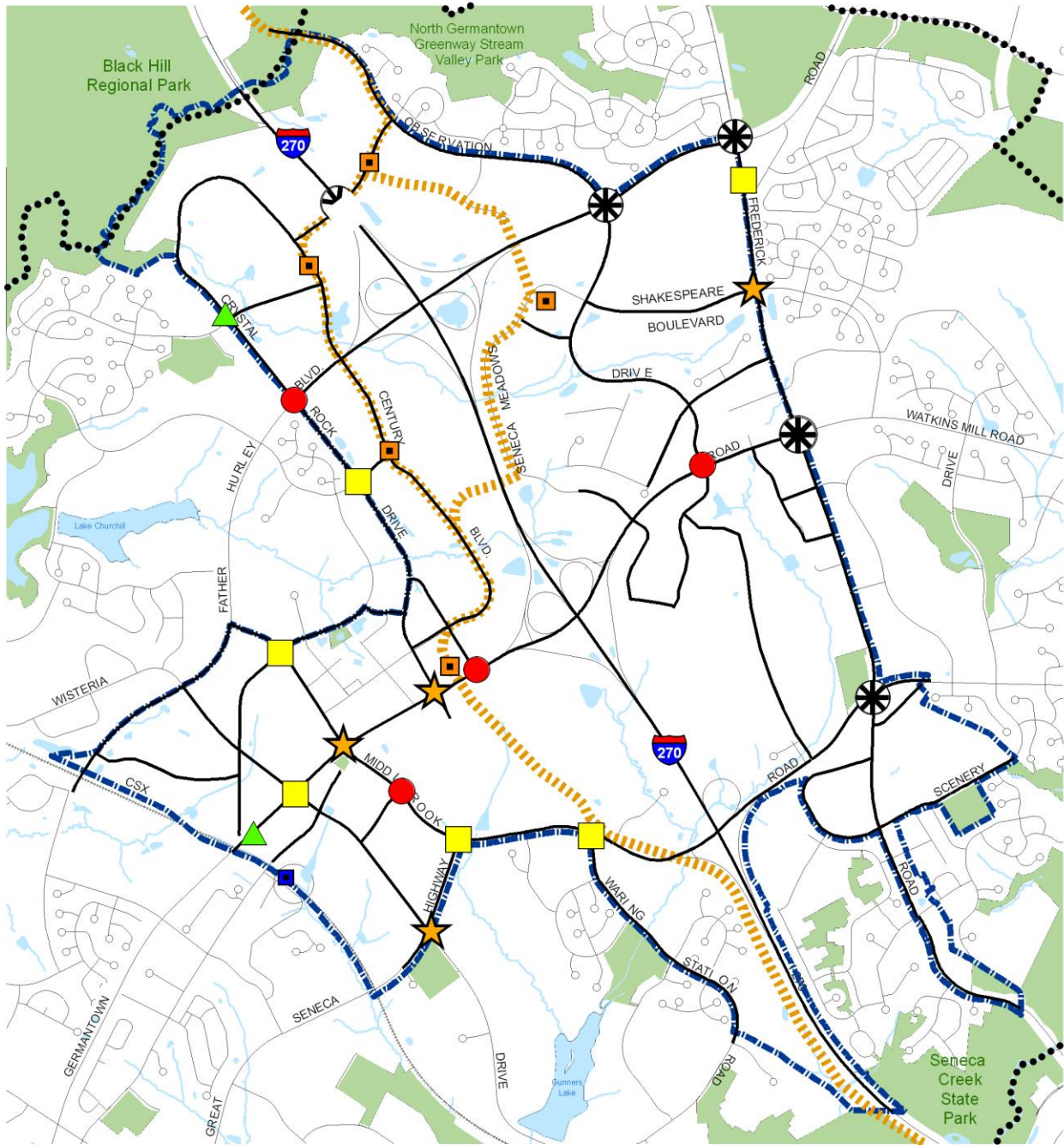
Congestion Levels and Parking Restrictions as Modal Shift Inducers

The Planning Board has asked whether or not relaxed congestion standards or more regimented parking management strategies would help reduce the need for auto facilities. We do recommend that where we have great transit service and utilization, it is appropriate to allow higher levels of congestion. **We do not foster the opposite approach, however, that congestion should be a tool applied to force a modal shift,** for three reasons. First, it can take a substantial amount of delay to induce modal, or temporal, shifts in commuter behavior. There are many factors other than travel time and transit availability that influence mode choice, as evidenced by the number of failing intersections documented in the past four editions of the Highway Mobility Report. Second, many transit users in Germantown will rely on local bus service in addition to, or in place of, the CCT, and roadway congestion adversely affects the provision of transit service as well. Finally, the imposition of congestion on the arterial system can have an adverse affect of diverting traffic to neighboring residential communities, a topic to be discussed regarding providing the right balance between access and mobility along newly proposed Arterial roadways such as Observation Drive in the Montgomery College District.

Parking policies can be a more progressive means to induce changes in traveler behavior. **We believe more restrictive parking space requirements and incentives to pass the cost of providing parking to the user should be explored in the comprehensive zoning ordinance revision,** rather than on a case-by-case basis in each new zone or master plan. We do not recommend a Parking Lot District to manage public parking in Germantown because the CCT transit station neighborhoods are fairly small, there is little County land with which to leverage parking structure construction, and most development parcels can “park themselves” without unduly constraining site design.

Congested Locations
per staff recommended network without additional turn lanes

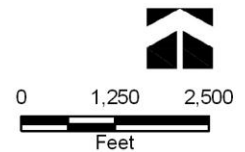
FIGURE 3



Future Congested Locations

- >20% Above Growth Policy Standard
- ★ <20% Above Growth Policy Standard
- Approaching Growth Policy Standard
- ▲ Below Growth Policy Standard
- Planned Interchange
- Planned Partial Interchange

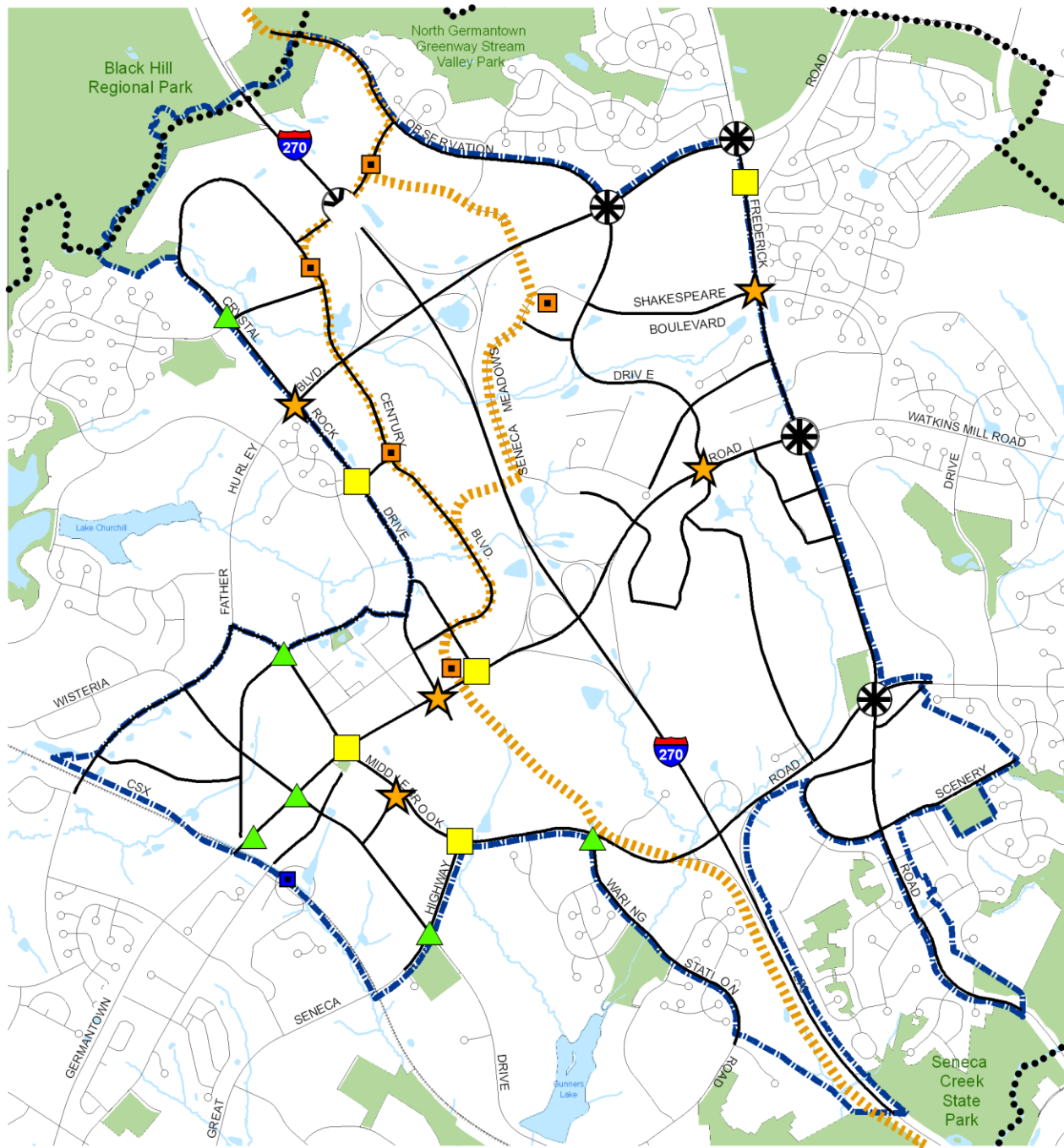
- Roads
- New Transit Stations
- MARC
- METRO
- CCT
- Study Area
- 1989 Planning Boundary



Congested Locations

per staff recommended network with additional turn lanes

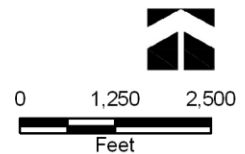
FIGURE 4



Future Congested Locations

- >20% Above Growth Policy Standard
- ★ <20% Above Growth Policy Standard
- Approaching Growth Policy Standard
- ▲ Below Growth Policy Standard
- Planned Interchange
- Planned Partial Interchange

- Roads
- New Transit Stations
- MARC
- METRO
- CCT
- Study Area
- 1989 Planning Boundary



2. CORRIDOR CITIES TRANSITWAY

The Planning Board Draft Plan should answer the following questions:

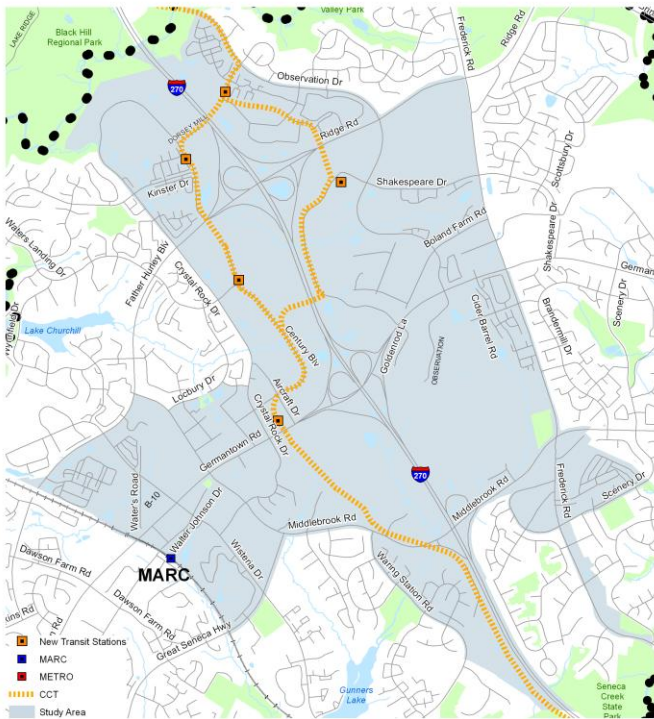
- Should the CCT be specified as a light-rail transit (LRT), a bus rapid transit (BRT) system, or remain mode neutral?
- How, and where, should the eastern leg of the CCT fit into the master planned transit service?
- To what extent will intermodal connections such as bus bays and commuter parking be needed to serve MARC and the CCT?

The Master Plan envisions a comprehensive transit system, including the CCT, MARC rail, and continuation of express bus services serving the Germantown transit center (to be incorporated within the Town Center CCT station, provision of park and ride spaces at the Manekin and Dorsey Mill stations with direct access from I-270, and expansion of local circulator bus services). With the CCT and a continuing focus on sustainable transportation initiatives we are seeking an average area wide achievement of a 25% non-auto driver mode share for employees (compared to 16% today).

Staff has coordinated with both Maryland Transit Administration (MTA) and WMATA regarding development throughout the I-270 corridor. The MARC and Red Line corridors have sufficient line-haul capacity to accommodate planned growth in the corridor, but funding for both capital improvements (including rail cars) and operating must continue to be committed. The expansion of MARC is described in the MTA Growth and Investment Plan dated September 2007.

A modal decision (bus or rail) on the entire CCT will be discussed this autumn after the Maryland Department of Transportation releases the I-270/CCT Environmental Assessment (EA). To date, the master plans have not specified a preferred mode for the CCT, as the linear transit right-of-way and stations are designed to provide either bus or rail service. The Planning Board has discussed this decision conceptually with MTA staff in worksessions earlier this year. Preliminary results from the MTA EA of I-270 and the CCT suggest that the CCT will be cost-effective as a BRT facility, but not competitive as an LRT facility, due to the higher costs associated with LRT. Based on current information, we expect the EA to reinforce our current sense that BRT should be the preferred mode for the CCT. We recommend, however, **awaiting EA publication and public review prior to establishing a preferred CCT mode in a Planning Board document**, to facilitate a full vetting of the deliberative analysis and public comment process.

The CCT as seen in Figure 5 is recommended as a bifurcated alignment between Germantown Town Center and Dorsey Mill Road with alignments along both the west side (via Century Boulevard) and east side (via Seneca Meadows Parkway). The western alignment is under study by MTA. The staging and operation of the eastern alignment will depend in part on the selection of either light rail or bus rapid transit for the CCT. **The primary purpose of the eastern alignment is to connect transit-oriented development to the Germantown Town Center.**



CCT alignment

FIGURE 5

Staff has determined that a formal CCT alignment serving Montgomery College would not be practical considering the cost of each crossing of I-270, the topographic challenges in the vicinity of Middlebrook Road, the environmental resources along the western edge of the college site, and the fact that the planned development of the college campus, without a single transit-oriented development node, facilitates local bus service but not line-haul service such as the CCT.

Staff needs to consider the balance between adjacent land uses and multimodal transfer needs in each transit station area plan. Conceptual planning for the CCT has been underway for nearly two decades, with each subsequent study (by M-NCPPC, DOT, and MTA) refining prior planning efforts. All studies have indicated a need for both bus bays and some commuter parking within the Germantown Plan area to serve both MARC

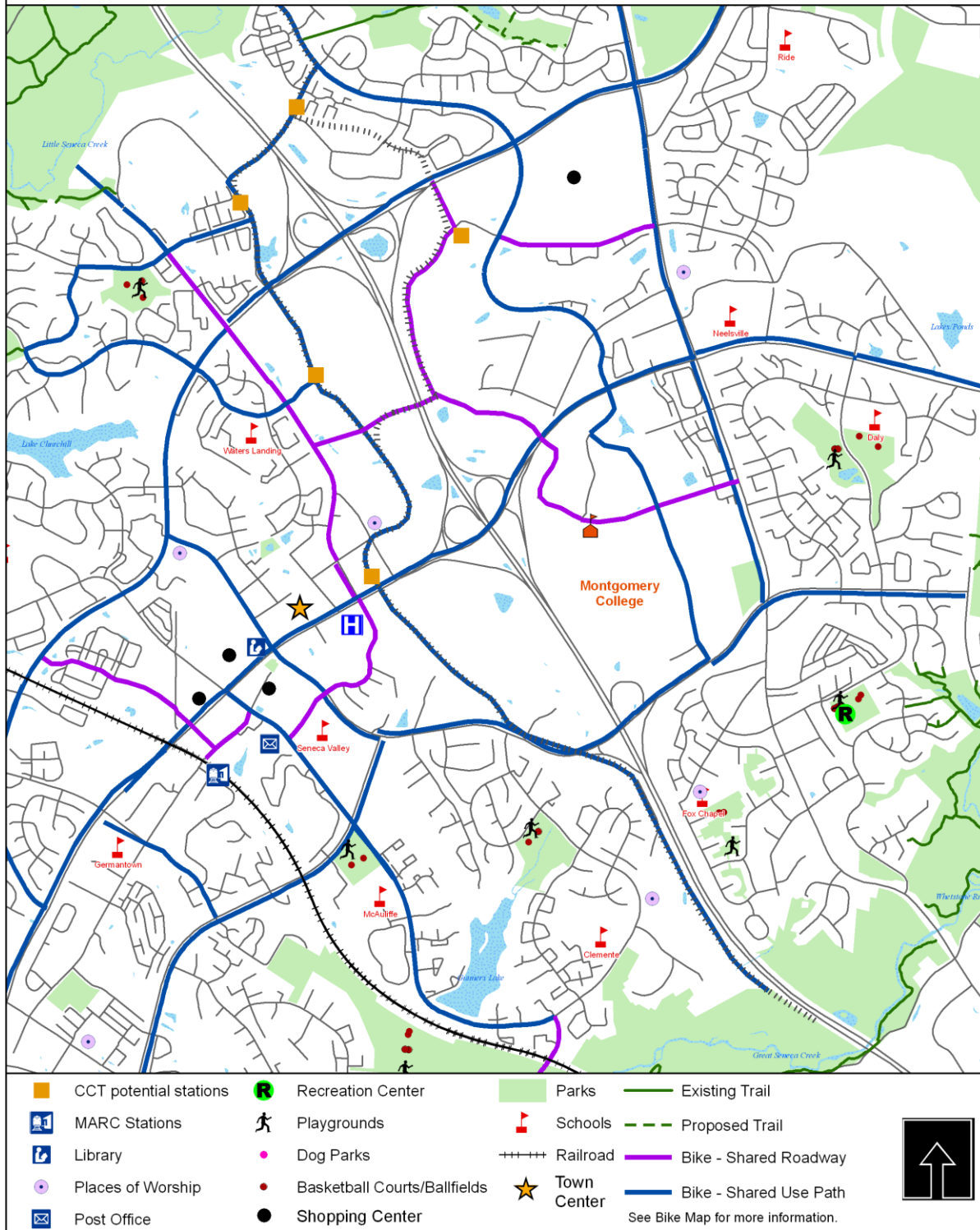
and the CCT stations. The draft Germantown plan recommends a shift in priorities for the Town Center CCT station, however, recommending that no commuter parking be designed explicitly for this station, where adjacent development densities and local circulator bus services are expected to be the greatest. Instead, the Plan recommends establishing commuter parking at the northern end of the Plan area at the two stations (Dorsey Mill and Manekin) adjacent to the Dorsey Mill Road crossing of I-270, where a proposed set of ramps to and from the north on I-270 will facilitate park and ride access for commuters from Clarksburg or points north.

3. BICYCLE AND PEDESTRIAN CONNECTIONS AND FACILITIES

The focus of the Germantown bikeway plan is on shared use path connections between the Town Center, adjacent residential communities, and the greenbelt park system. These proposed bikeways connect to existing neighborhoods, MARC station, Montgomery College, the Town Center, and the Transit Center as well as parks and schools. These bikeways can be viewed in Figure 6. Off-road bicycle paths are recommended along every major highway and divided arterial roadway in the plan area.

Destinations in Germantown

FIGURE 6

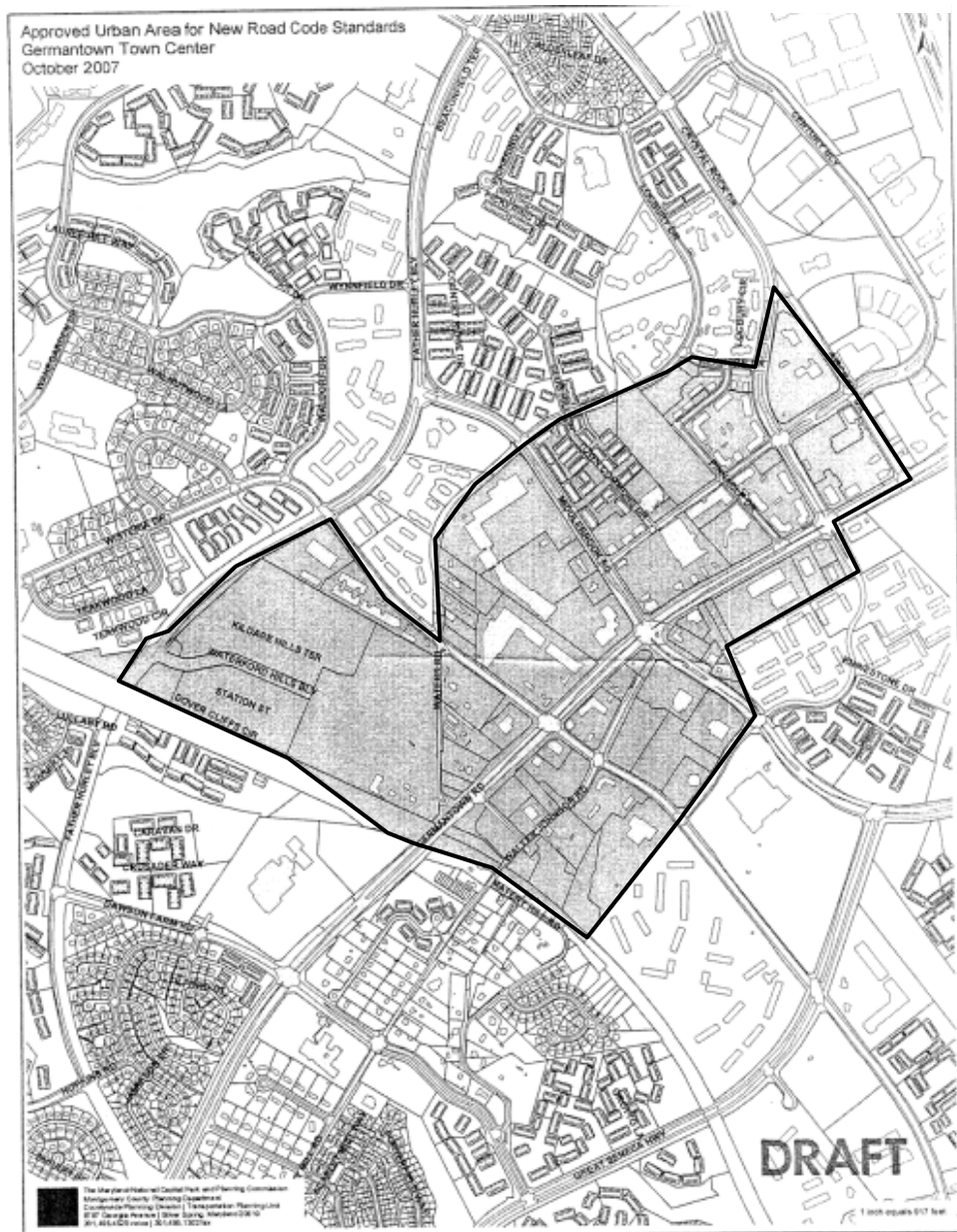


On road cycling is also an important element of transportation in Germantown and bike commuting can help reduce the prevalence of auto travel. On slower speed streets within the Town Center, bikes will be accommodated on shared-use roadways. The 2005 Countywide

Bikeways Functional Master Plan recommends a signed-shared roadway (including wider curb lanes) along MD 118 as part of an on-road bikeway network connecting Clarksburg, Germantown, and Gaithersburg. Changes to the County’s road code and design standards are designed to ensure all roads will accommodate bikes.

The County Executive released their proposed Context Sensitive Road Design Standards (Executive Regulation 31-08) on September 1 and the Planning Board is scheduled to review staff recommendations on the design standards on September 18. We expect the review of neighborhood-specific roadway and bikeway connection issues to be informed by the September 18 discussion. Staff is particularly interested in the design of roads in the urban areas of the County, as defined by the County Council in 2007. Figure 7 shows the locations of the urban area within the Germantown Plan area.

FIGURE 7



4. MIDCOUNTY HIGHWAY AND MD 355

Along the MD 355 corridor, forecast traffic congestion is severe at locations where MD 355 intersects east-west major highways such as Ridge Road (MD 27). The 1989 Master Plan recommends a grade-separated interchange at this location. In this Plan, interchanges will need to be added on MD 355 even with a built Midcounty Highway. The feasibility of Midcounty Highway is currently under study by DOT to determine whether or not it could be found approvable by permitting agencies. The level of uncertainty associated with Midcounty Highway has informed our Germantown Master Plan recommendations for MD 355.

The DOT study of Midcounty Highway Extended (M-83) is expected to be completed in early 2010, after the Germantown Plan adoption. The master plan alignment for M-83 is outside of the Germantown Plan study area. The master-planned alignment is in both the master plan and the regional Constrained Long Range Plan and has been assumed as part of the network of regional transportation improvements for the purposes of master plan analysis.

DOT has studied an alternative to building M-83 by improving MD 355. Their preliminary findings are that an MD 355 alternative that generally respected the current 150' wide right-of-way and existing development in the corridor would not meet the study purpose and need. Staff concurs with that finding, but has requested that DOT expand their alternative definition to develop an alternative that does meet the purpose and need, in order to more fully evaluate alternatives to M-83. DOT is now developing such an alternative. Staff has recommended a 250' wide right-of-way for MD 355 in the draft plan, coupled with a staging element that would link the ultimate right-of-way width to a County Council decision regarding the M-83 study in 2010. The wider right-of-way would also provide the ability to study bus rapid transit concepts further during the same staging period.

Staff has also explored the development of what Peter Calthorpe terms an "urban network"; the provision of at-grade, one-way couplets where major highways meet. This concept could be applied at each of the MD 355 intersections with MD 27, MD 118, and Middlebrook Road. Preliminary analyses indicate that this approach (the replacement of a single wide intersection with four intersections of one-way streets around a town square type of feature) could provide mobility levels commensurate with that achieved by the proposed grade-separated interchanges. The urban network would also have a lower capital cost, but requires a substantial and coordinated redevelopment to implement. The Plan recommends that the urban network concept be studied further, either as a supplemental study to the Plan (should budgetary constraints permit) or as an alternative within any project planning study of interchange construction.

5. TRANSPORTATION CONSIDERATIONS IN STAGING

The staging plan recommends inclusion of certain public facilities, including new roadways needed for connectivity, within the geographically-focused staging plan. The Planning Board has expressed interest in exploring alternative staging mechanisms whereby interim levels of development could be better correlated with the overall implementation of master planned transportation system capacity. The primary staff concern in that regard is that the transportation facilities that will most directly affect system capacity and mobility; I-270, the CCT, and MD

355; will be provided by the state (and the CCT will likely require substantial federal funding through the New Starts program). The objective of the Germantown Plan is to encourage transit-oriented development in advance of the CCT, rather than retarding the pace of development to await CCT operations.

Staff therefore recommends that the staging plan continue to incorporate staging triggers that include arterial and business street connections, but not regional connections such as I-270 or the CCT.