

Germantown Worksession #4

MCPB October 20, 2008 — Item #3

- Attachment L      Memorandum from Transportation Division
- Attachment M      Memorandum from Environmental Planning Division



## ATTACHMENT L

### MONTGOMERY COUNTY PLANNING DEPARTMENT

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

September 30, 2008

Revised October 14, 2008

#### MEMORANDUM

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

FROM: Dan Hardy, Acting Chief  
Transportation Planning

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Katherine Holt, Senior Planner  
Transportation Planning

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SUBJECT: Germantown Master Plan  
Worksession #4: Montgomery College

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Worksession #4 for the Germantown Master Plan on October 30 will provide an opportunity for staff to solicit Planning Board guidance on Montgomery College. The primary transportation issue related to the College site is the connection of the campus to the major highway network, including MD 118 to the north, MD 355 to the east, and Middlebrook Road to the south. The concerns related to the transportation system relate primarily to the:

- Future land uses and traffic volume growth
- Need for transportation system connectivity
- Ability for development to mitigate Policy Area Mobility Review (PAMR) requirements

Currently, Observation Drive serves at the sole entrance to Montgomery College, which is a two lane road without bicycle accommodations. The business portion of Montgomery College can only be accessed through Goldenrod Lane from MD 118, which does not connect to the campus. Goldenrod Lane is a two lane road without bicycle accommodations. Based on the existing land use for 2007, staff estimates Observation Drive carries an average daily traffic (ADT) volume of 3,500 and Goldenrod Lane has 2,500 ADT.

Currently, these two roadways support approximately 455,000 square feet of development on the college campus serving an enrollment of roughly 6,000 students. Staff estimates that the current uses generate approximately 650 weekday peak hour vehicle trips.

## **Future Land Uses and Traffic Volume Growth**

Staff has performed two estimates of the amount of development that might be considered on the site generally described as the Montgomery College site, including both college campus and adjacent technical park uses served by Observation Drive and Goldenrod Lane.

For the May 2008 Public Hearing Draft Plan, staff assumed a development yield of 1,315,000 square feet of space, with growth assumed in both campus and research sectors. Staff estimates that the site would generate approximately 1,900 weekday peak hour vehicle trips, or about three times the traffic generated by the existing uses on the site.

Staff is now working to support the program described in the Montgomery College conceptual plan from June 2008, modified to incorporate the Holy Cross Hospital within the technology park. This program would include a total of 1,991,000 square feet of commercial space (including 337,000 square feet of hospital space) and 500 residential dwelling units. Staff estimates that these uses on the site would generate approximately 2,450 weekday peak hour vehicle trips, or roughly four times the amount generated by the current site.

## **Transportation System Connectivity**

The southerly extension of Observation Drive across the Montgomery College campus to Middlebrook Road as an arterial is needed to aid local traffic as well as assist regional traffic flows on MD 355 by providing a more robust arterial network that builds redundancy and reduces circuitous travel. This connection will facilitate access within and across the campus to the Technology Park, while reducing local trip lengths. Currently, it is about 1.3 miles from Hughes to the current Montgomery College development traveling along MD 355, and this trip will be significantly reduced to about 0.5 miles with the extension of Observation Drive. Reducing circuitous travel reduces vehicle-miles of travel (VMT) by shortening auto trip lengths as well as improving transit connections and encouraging shifts to non-motorized modes such as biking and walking.

The Observation Drive extension is master planned to be on the east side of the Montgomery College campus property just outside of the stream valley buffers of the headwater tributary of Gunners Branch, which would maximize the developable area of the property. The road will be classified as an arterial with four lanes, undivided to meet both local and area wide needs and facilitate future bus service. Since it is a college campus, additional pedestrian and bicycle access will be accommodated as part of the road extension through bicycle lanes, sidewalks, and a shared use path. These facilities will create a safer connection for the bicycle community. As an undivided roadway, this section of Observation Drive would be narrower than the existing portion to the north of MD 118, and would require approximately 80 feet of right-of-way.

In addition to Observation Drive extension, the master plan proposes to extend Cider Press Lane to connect Observation Drive to MD 355. Staff recommends this additional access point in order to support total Montgomery College Master Plan development of nearly two million square feet commercial space and 500 new residential units. This new connection will provide another access point to Montgomery College and would distribute future traffic generated by the development of the campus. This new road is needed to help area residents gain access to their homes from the campus property. Staff recommends a change to the draft Master Plan in that the east-west section of Cider Press Place, including its westward extension, should be classified as two-lane Minor Arterial between MD 355 and Observation Drive.

This change has two elements:

- Between Observation Drive and MD 355, the roadway should have two through lanes rather than four as recommended in the Public Hearing Draft Plan, and
- The portion of Cider Press Place identified as a two-lane primary residential street in the Public Hearing Draft Plan should be changed to a Minor Arterial, reflecting its purpose in connecting the college campus to MD 355.

Staff examined alternative locations for providing direct roadway access between the College and MD 355. The Cider Press Place extension is preferred based on the relatively limited stream buffer crossing at the eastern edge of the campus. This alignment will, however, have an adverse impact on the Mary Boland subdivision as one block of a tertiary residential street with twenty fronting townhouses would experience increased traffic volumes as a reclassified and substandard minor arterial roadway.

The last master planned road on Montgomery College campus is the extension of Goldenrod Lane. This extension will connect to Observation Drive, skirting along the edge of the forest. This road should be provided in conjunction with the development plans for the Technology Park. The connection will allow students to access the Technology Park and will give other employees access to the Technology Park through Observation Drive and the new connection via Cider Press Place Extended to MD 355.

The functionality and design of the new roadway connections should be carefully considered in subsequent campus planning efforts. The roadway alignments will need to both minimize impacts to the natural environment and be designed in a context-sensitive manner for the campus and community uses they serve. While staff finds that an arterial function is needed to allow some longer distance trips to cross the roughly 350 acre site under consideration, we concur with the campus master plan materials that the general alignment of Observation Drive can have some curvature as it crosses the campus. Our forecasts indicate that the busiest segments of a four-lane Observation Drive on campus will carry about 15,000 vehicles per day. For purposes of comparison, two-lane Fenton Street in the vicinity of the College's Takoma Park campus carries about 9,000 vehicles per day.

## Policy Area Mobility Review

Staff reviewed the overall transportation system performance and adequacy with the Planning Board during Worksession #1. Staff found that the development scenario and transportation network envisioned in the Public Hearing Draft Master Plan provide a balance between land use and transportation, based in part on the forecast Policy Area Mobility Review (PAMR) conditions, in which both the Germantown East and Germantown West Policy Areas have acceptable levels of arterial and transit mobility.

The challenge for development in the Germantown East Policy Area, including Montgomery College, is the timing of master planned infrastructure, as the current Growth Policy requires PAMR mitigation of 100% of new peak hour vehicle trips. The most significant additions to the master planned infrastructure serving the Germantown East Policy Area are the widening of I-270 and the construction of the Corridor Cities Transitway, both with estimated construction dates at least ten years in the future (2020 and 2017 per the draft 2008 Constrained Long Range Plan, and potentially longer given recent budgetary conditions). These projects will provide significant amounts of additional mobility in the long-term, but development will likely need to provide substantial mitigation requirements in the interim.

The proposed college expansion plan will occur in phases, with about half of the new growth expected to occur during the next two decades. Half of the campus development might be expected to generate about 900 new peak hour vehicle trips. How might those trips be mitigated according to PAMR? One possible suite of improvements would include:

- Establishment of a trip reduction program to reduce total site trip generation by 20%. This trip reduction could be achieved through a combination of internal trip capture to the extent that there are strong correlations between the internal site components and by implementing travel demand management programs oriented in particular towards employees and college students. The trip reduction program would target all campus employees (including the 650 existing trips already on the road), so that reducing the 1550 projected trips by 20% would be a net reduction of about 300 vehicle trips, or one-third of the goal.
- Purchasing five Ride-On transit vehicles and committing to the funding of operations for twelve years, providing PAMR mitigation of 150 vehicle trips, or one-sixth of the goal.
- Construction of Observation Drive as a four-lane arterial roadway southward to Middlebrook Road. A three-quarter mile section of roadway construction would mitigate approximately 450 vehicle trips, or one-half of the goal.

The proposed development would be a combination of both private sector development (for which PAMR mitigation is required) and public sector development (for which PAMR impacts would be identified in the mandatory referral process, but without a formal regulatory mitigation requirement). While some mitigation proposals, such as

transit vehicle purchase, have not been found to be cost-effective for any private sector development, it may be that the vehicles could be considered timely purchases by the County as we consider the need to expand the Ride-On transit vehicle fleet by about 250 buses over the next 25 years.

Alternatively, the County might consider the staff proposal that each PAMR vehicle trip is worth about \$11,000 in mitigation, in which case the value of a 900-trip mitigation package is approximately \$10M. The Planning Board has approved the use of a payment-in-lieu methodology for small applications needing to mitigate fewer than 30 trips. While such a method is not currently available in the Growth Policy, further means to develop creative mitigation proposals (such as, perhaps, a transit center at the college) that are valued based on fiscal impact may be considered in the 2009-2011 Growth Policy development during the next several months.



# ATTACHMENT M

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

October 6, 2008

### MEMORANDUM

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

VIA: Mary Dolan, Environmental Supervisor *MD*  
Environmental Planning

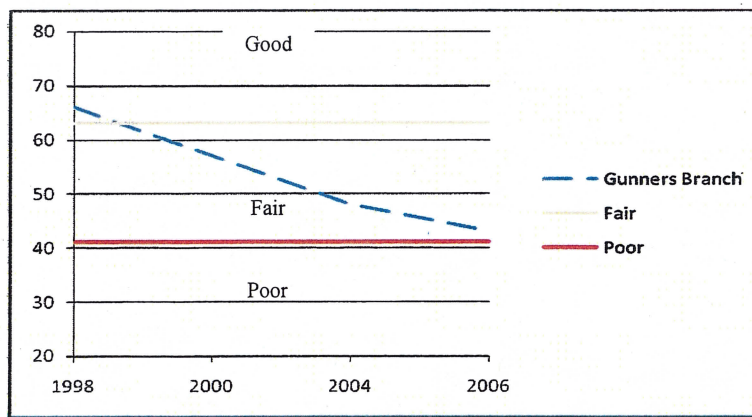
FROM: Steve Findley, Planner Coordinator *SFH*  
Environmental Planning

SUBJECT: Germantown Master Plan Worksession # 4: Environmental Discussion Topics –  
Montgomery College Forest, Water Quality and Sustainability

Planning for sustainable communities begins with the protection of as much of the existing green infrastructure as possible. Existing forests, wetlands, and streams are already providing environmental benefits that form the underpinnings of a sustainable development on the Montgomery College property in Germantown. Our recommendations for forest preservation and water quality are intended to protect this existing infrastructure as the rest of the site develops. See Worksession #3 memo for more detail on the importance of protecting forests and water quality.

#### Water Quality

The Montgomery College property drains to the headwaters of Gunners Branch. Monitoring conducted as part of the Countywide Stream Protection Strategy (CSPS) shows a steady decline in water quality at the monitoring station that tracks development on Montgomery College and neighboring properties in the watershed. The Index of Biotic Integrity scores (which measure the biological diversity and abundance of organisms in the stream) here have dropped from 66 (“Good”) in 1998, to 48 (“Fair”) in 2004, and finally 43 (“Fair,” with the break point to “Poor” at 41) in 2006.



One of the environmental goals of the Germantown Master Plan is to prevent further declines in water quality. This goal is bolstered by the recent release (July 2008) of the Great Seneca and Muddy Branch Watershed Study, a joint project of the Montgomery County Department of Environmental Protection, the M-NCPPC, and the U.S. Army Corps of Engineers. The study identifies the stream reaches on the east side of the Montgomery College Property, as well as immediately south of the property, as priority stream reaches for restoration. This means that restoration of these stream reaches will provide significant benefits to water quality in the Great Seneca watershed. Restoration of these streams will be given a high priority in the Great Seneca watershed.

The Montgomery College site occupies 224 acres of a Gunners Branch subwatershed that comprises 584.95 acres. On a percentage basis, the college covers 38% of this subwatershed, and over 8% of the total acreage in the Gunners Branch drainage and most of the undeveloped land there. Because it affects a significant portion of the watershed, development of this site must incorporate multiple approaches to water quality protection in order to keep water quality in the fair range and avoid undoing any benefits of restoration downstream of the College.

Based on the now well-established link between increases in impervious surface, forest loss, and declines in water quality, **we recommend that impervious surface be minimized and significant forest areas be retained through the use of compact development and low-impact design throughout the planning area. We also recommend that stream buffers be enhanced by tree planting in areas where buffers are not forested on the eastern side of the Montgomery College property.** Enhancement of these buffers will also make them more attractive to the college setting and as links in the network of trails and open spaces proposed in the Master Plan.

#### Forest Preservation

On the Montgomery College property **we are recommending that, in addition to the forested stream buffers, we preserve a block of mature upland forest on the west side of the property approximately 50 acres in size.** This forest block meets two of the criteria established by the Montgomery County Forest Conservation law for designation as high priority for retention:

- Contiguous forest (the forest area exceeds 50 acres), and
- Champion trees and other exceptionally large trees (more than 400 trees 24" in diameter at breast height (dbh), 108 of which are classified as "specimen trees").

This is confirmed by the approved NRI/FSD for this site (approved by the M-NCPPC in October 2006) where it is shown as high priority. This recommendation also is consistent with a general recommendation in the 1989 Germantown Master Plan that states: "This Plan encourages the preservation of existing forest areas, including preserving as many trees as possible on development sites, and recommends the reforestation of open space areas where possible."

In November of 2007, Montgomery College representatives met with representatives of the Maryland-National Capital Park and Planning Commission to discuss concept plans for the development of a child care center and Bioscience Educational Center. No plans for significant development were presented and M-NCPPC representatives directed the college to submit a Preliminary Forest Conservation Plan for the entire college property with plans for the further development of the site. Staff indicated that decisions about how much forest could be saved would be discussed when such plans were submitted. Ultimate recommendations for forest preservation are to be determined in the review of the Preliminary Forest Conservation Plan. That plan has not yet been submitted.



Beginning in the fall of 2007, environmental staff on the master plan team clearly indicated that this forest area was important to the water quality and habitat of the Gunners Branch and that they would be working with the master plan team to protect it.

The Montgomery County Forest Conservation Law has been in force since 1992. According to the Forest Conservation Regulations, “The primary objective of the forest conservation plan should be to retain existing forest and trees and avoid reforestation in accordance with this Chapter. The forest conservation plan must retain certain vegetation and specific areas in an undisturbed condition unless the Planning Director finds that:

- The development would make maximum use of any available planning and zoning options that would result in the greatest possible forest retention; and
- Reasonable efforts have been made to protect the specific areas and vegetation listed in the plan; and
- The development proposal cannot reasonably be altered.”

Although heavy deer browse has reduced understory habitat structure, this area currently contains approximately 22 acres of interior forest. With control of the deer population here, the understory can recover and forest interior habitat conditions will improve. According to the Maryland Department of Natural Resources, forest interior breeding birds are among Maryland’s species of greatest conservation need, indicating that they are at risk or declining in Maryland. The Chesapeake Bay Critical Areas Commission states that habitat for forest interior breeding birds is assumed to be present in forests 50 acres in size with a forest interior area of at least 10 acres.

This upland forest is significant for the size of the trees and overall forest tract size. It is performing important functions in reducing heat island effect, protecting water quality, filtering air and storing and sequestering carbon. Several of these functions are maximized by the size of the trees and forest acreage. Approximately half of the dry weight of the biomass of a forest is stored carbon. While newly planted trees will also sequester carbon from the atmosphere every year, it would take many years to achieve the level of carbon storage in this forest. Aerial photographs show what appears to be maturing forest here in the 1950’s. The large, mature canopy also shades over 50 acres, providing an island of cooler air in the midst of Germantown. The canopy also intercepts precipitation, storing a fraction on the leaves and trunks and allowing the rest to infiltrate into the litter layer and soil of the forest floor. The greater the canopy area, the more precipitation intercepted and stored. As stated above, the size of the forest also provides forest interior conditions. These functions cannot be replicated by street tree plantings or by planting of new forest on or off-site.

Some estimates of the benefits provided by this forest include:

- Water quality protection – For every 5% increase in community tree cover, stormwater runoff is reduced by 2%. Trees act as natural pollution filters, reducing stormwater runoff and removing nitrogen, phosphorus, potassium, and sediment that harm water quality.
- Air quality benefits – It is estimated that this forest will remove about 1730 pounds of ground-level ozone per year; about 1450 pounds of particulates; and approximately 900 pounds of nitrogen dioxide, 730 pounds of sulfur dioxide, and 215 pounds of carbon monoxide.

The forest block recommended for preservation exceeds the definition of an Isolated Forest of

Countywide Significance under criteria in the draft Green Infrastructure Plan.

### Sustainability

It is essential that any institution of higher learning both lead by example and teach students in an atmosphere of sustainability. The business park and the campus should be in close proximity, walkable, with common areas, libraries, and food service where business innovators and researchers can come in contact with students and faculty to allow a rich exchange of information. **We recommend a compact, mid-rise mixed community with structured parking at the edges which encourages walking and communication.** This compact structure will allow more of the forest area to be maintained and even used as an amenity for the campus with nature trails that will give all those who study and work in the area a place to relax and restore. In addition, **the buildings and grounds for the campus and businesses should be built to the highest green standards, following the sustainability principles given in the Worksession #3 memo.** Examples include:

- Maximize energy savings and generate, where possible, some portion of the campus energy needs on site.
- Emphasize native plants.
- Minimize lawn.
- Minimize irrigation.
- Minimize impervious surfaces.
- Highlight water of every kind (except irrigation) in the design of building and grounds – rainwater collection, conveyance and percolation; water as habitat; water for its life-affirming nature.
- Attract wildlife (with the exception of deer).

Given the position of this site in the headwaters of Gunners Branch, the steep topography, and resulting potential for downstream damage from runoff if this property is not carefully designed, we recommend that Low-Impact Design (LID) strategies and practices be employed to achieve a sustainable development. Such strategies and practices include:

- Conservation Design that reduces runoff generation by incorporating open space. This can include the use of cluster development, open space preservation, reducing pavement widths, using shared driveways and parking lots, and reducing setbacks.
- Infiltration Practices that use engineered structures and landscape features, such as infiltration basins and trenches, disconnected downspouts, and vegetated treatment systems like rain gardens, to capture and infiltrate runoff.
- Runoff storage practices that catch and store runoff from impervious surfaces either for re-use to water landscape plants or to gradually infiltrate or evaporate. Such practices include parking lot, street, and sidewalk storage, rain barrels and cisterns, depressional storage in natural or landscaped areas, and green roofs.
- Runoff conveyance practices that reduce runoff velocities, offer opportunities for infiltration, and mitigate spikes in peak flow discharges. This can include use of grass swales, roughening surfaces of conveyance channels, lengthening flow paths over landscaped areas, and creating terraces and check dams.

- Use of filtration practices such as bioretention, rain gardens, vegetated swales, filter strips and buffers.
- Low-impact landscaping using drought-resistant native plants, converting turf to shrub and tree areas, reforestation, wildflower meadows, and soil amendments to increase infiltration.