PHED & T&E Committees #1
January 13, 2014

MEMORANDUM

January 9, 2014

TO: Planning, Housing, and Economic Development and Transportation, Infrastructure, Energy and Environment Committees

FROM: Marlene Michaelson, Senior Legislative Analyst

SUBJECT: Ten Mile Creek Area Limited Amendment to the Clarksburg Master Plan and Hyattstown Special Study Area

This is the Planning, Housing, and Economic Development (PHED) and Transportation, Infrastructure, Energy and Environment (T&E) Committees' first joint worksession on the Planning Board Draft of the Ten Mile Creek Area Limited Amendment to the Clarksburg Master Plan and Hyattstown Special Study Area (hereafter referred to as the Ten Mile Creek Amendment). The Committee is currently scheduled to have three worksessions on the Amendment.

The first two worksessions will provide the Committees with important background on environmental issues. These will be informative in nature and Staff does not anticipate any Committee decisions at these meetings. At the first worksession on January 13, Planning Department staff and their environmental consultants (Biohabitats and Brown and Caldwell) will present the environmental analyses they conducted as a basis for the Planning staff and Planning Board decisions/recommendations. In addition to generally presenting their findings, Staff has asked them to be sure their presentation addresses issued listed later in this memorandum.

On Friday January 17, a panel of government experts will address the Committees, following up on the issues discussed at the first worksession. The issues of drinking water quality and reservoir water quality will also be discussed at this meeting.

The third worksession on January 24 will cover transportation and land use issues and property specific recommendations for land use, zoning, impervious caps, etc. At this meeting, Staff will present options for each property that will allow the Committees to vote on recommendations. This meeting will also address the Plan's recommendations for parkland and Legacy Open Space.

Councilmembers should bring their copy of the Plan to the meeting.

Attached on © 1 to 72 are background materials prepared by the Planning Department relevant to the issues that will be addressed at the first worksession. A chronology of events related to the Ten Mile Creek Amendment is attached at © 1 to 3. Circles 4 to 16 is a response to questions submitted by Councilmember Berliner. The scope of work for the Planning Department's environmental consultants is attached on © 17 to 22. The consultant's response to technical criticisms made by Pulte's environmental consultant (Geosyntec) is attached at © 23 to 29. Circles 30 to 70 presents the Planning Department's response to testimony submitted to the Planning Board on the Ten Mile Creek Amendment. Several individuals/groups raised the same issues before the Council. Circles 71 to 72 describes the rationale for using different impervious levels for different properties within the Ten Mile Creek Watershed. The Council has not yet received comments from the County Executive on the issues to be covered at this worksession.

Background

In October 2012, the County Council directed the Planning Board to undertake a limited amendment to the 1994 Clarksburg Master Plan to determine whether development should be allowed to proceed under the zoning in the 1994 Master Plan or whether changes in land use and/or zoning were needed to adequately protect Ten Mile Creek. The Amendment was limited to the Ten Mile Creek Watershed area. This area comprised Stage 4 in the 1994 Master Plan and does not yet have public water and sewer. A chronology describing the various steps leading up to the Council decision to revise the Master Plan is attached at © 1 to 2. Additional background information regarding the 1994 land use vision and objectives for Clarksburg will be presented at the third worksession.

Planning Department/Consultant Presentation

Staff asked the Planning Department staff and their consultants to present their analyses to the Committees, including addressing the questions/topics listed below. Where the Planning Department submitted written materials, it is indicated below.

1. As background for the Committees' discussions, briefly summarize the recommendations in the 1994 Master Plan and the reasons this amendment was prepared. Provide a chronology of decisions thus far related to Clarksburg and a chart summarizing the different land use and zoning recommendations in the 1994 Master Plan, the 2013 Staff Draft, and 2013 Planning Board Draft (see response on © 1 to 3).
2. What was the scope of work for the Planning Department's environmental consultant? (See response on © 17 to 22.)
3. What is the current condition of the Ten Mile Creek watershed and the various sub-watersheds?
4. Why is the water quality of Ten Mile Creek important? (See © 4 to 5.)
5. What is a headwater and does it require special treatment?
6. What is environmental site design (ESD) and what role is it expected to play in protecting Ten Mile Creek?
7. Could master plan decisions allow water quality to improve in sub-watersheds where water quality has already deteriorated? Under what circumstances is water quality likely to deteriorate?
8. Would the recommended development in the Planning Board recommended Master Plan have a negative impact on water quality?

9. Describe the analysis prepared by the consultant. What scenarios were modeled? What additional analyses were conducted?
10. What assumptions were made about the use of ESD in the creation of different scenarios and the analysis of options?
11. What is the consultant's response to comments submitted in testimony asserting that their analysis was flawed (e.g., that they underestimated peak flows; that they underestimated anticipated sediment loads because the modeling did not include the effects of channel erosion; that the modeling for existing run-off conditions is significantly different from actual stream flow monitoring data; and that their analysis was not based on the more detailed information used by the property owner[1])? (See © 17 to 22.)
12. Where has the Council limited impervious surface levels in the past?
13. The Master Plan Amendment allows different levels of impervious surface on different properties within the same watershed. What was the basis of the Planning Board's decision to recommend varying levels of imperviousness? Has the Planning Board recommended different impervious surface levels for different properties within the same watershed in the past? (See © 71 to 72.)
14. What is the rationale for allowing a higher impervious surface level cap in the headwaters than downstream?
15. How do small increases or decreases in impervious surface levels impact water quality? What are the potential impacts of setting the impervious surface level cap on the Pulte property to 8% (as recommended by Planning Department staff), 10% (as recommended by the Planning Board) or 12.5% (as requested by the contract purchaser)?
16. The Council has received testimony recommending both higher and lower impervious surface levels on the Miles-Coppola and Egan properties. What is the impact on the environmental conditions of increasing imperviousness to 35%? Reducing it from 25% to 20% or 15%? Reducing it to 8%? (Note that for the worksession on January 24, Staff has asked the Planning Department to present information on the development potential under these options.)
17. What is the impact of the development that the Master Plan recommends for Stage 4 on the Piedmont Sole Source Aquifer? Could development levels recommended in the Master Plan impact the quality of well water?

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[1] Note that additional detail on the objections to the consultant's work was submitted in testimony by Pulte and other individuals and organizations.

Chronology of Actions Related to the Ten Mile Creek in Clarksburg
(Prepared by Planning Department Staff 1/9/14)

June 1993 - Planning Board Draft of Clarksburg Master Plan recommends 1 unit per 5 acres west of I-270 and medium density residential for most of Egan and Miles/Coppola properties.

June 1994 – County Council approves light industrial for both sides of I-270 near the 121 interchange with 2-4 units/acre for the properties further west and medium density residential for the remainder of the Miles/Coppola and Egan properties respectively. Staging added to the plan to assure that the decision of how to proceed in Stage 4 rested with the County Council after evaluating the impact of Stages 1-3 on Little Seneca Creek.

October 2005 – Sewer and Water Category Change Request received for Miles/Coppola. Deferral requested by the applicant.

2007 – Staging triggers were met for consideration of monitoring data.

2008 - Montgomery County adopts changes to the regulations to require Environmental Site Design (ESD) in conformance to the State Law.

January 2009 – Special Protection Area Annual Report for the monitoring year 2007 analyzes impact of development on Little Seneca Creek and other Special Protection areas. The report gives no definitive findings that will predict the impact of development on Ten Mile Creek.

May 2009 - Sewer and Water Category Change Request received for Pulte & King properties. Request returned due in part to the Council's decision to establish the Stage 4 *ad hoc* working group.

May 2009 – Pulte & King Water and Sewer Category Change application returned due in part to the Council's decision to establish the Ad Hoc Water Quality Working Group.

July 2009 – County Interagency Workgroup expresses concern about potential for impact on Ten Mile Creek and Planning Board reports to Joint T&E and PHED Committees that an amendment to the Master Plan is necessary, due primarily to the fact that construction was still in its active phase. Final protective measures were not yet in place and temporary impacts had not yet stabilized.

October 2009 – Council establishes an Ad Hoc Water Quality Working Group representing all the stakeholders and local agencies to "collect information on all new and pending State and Federal regulations regarding water quality, stormwater management, and sediment control; analyze how these new requirements could impact future development in Clarksburg, especially in Stage 4; seek input from Clarksburg stakeholders as to the methods they propose for minimizing development impacts on water quality in the Ten Mile watershed, and advise the Council on the steps necessary to preserve water quality in Stage 4."

May 2010 – ESD Regulations take effect in Montgomery County.

July 2010 - Sewer and Water Category Change Request received for Egan/Mattlyn properties. Action is delayed awaiting Council reaction to the Ad Hoc Water Quality Working Group report and the master plan amendment process.

July 2010 - The Ad Hoc Water Quality Working Group report results in split opinion where the majority (environmental, civic and agency representatives) recommended an examination of the land use options in a master plan amendment and the property interests and industry groups recommended moving ahead with development. Joint PHED and T&E Committee hear report results and take no action.

May 2012 – Special Protection Area Annual Report for the monitoring year 2010 reports a slowing of water quality degradation within the SPA and in certain areas, slight increases in water quality. However more time is needed to definitively assess the effectiveness of the water quality protection measures for newly developed areas.

October 9, 2012 - County Council requests the Planning Board to prepare an amendment to the Clarksburg Master Plan. Establishes a one year schedule and authorizes funds for environmental, transportation and economic studies.

July 25, 2013 – Planning Staff recommends RNC zoning on Pulte and King Properties at 1 unit per 0.4 acre with an 8% imperviousness cap. Egan is shown with R200 zoning and with a 25% imperviousness cap. Miles/Coppola zoning is shown with two options: Option 1 is a balanced mixed use option with a 25% imperviousness cap and with CR 0.5, C 0.25, R 0.25, H 75 zoning; Option 2 is mixed use, but with a more residential focus, with a 25% imperviousness cap and townhouses at 12 units to the acre.

October 25, 2013 – Planning Board transmits Planning Board Draft Plan to the County Executive and County Council. It recommends RNC zoning on Pulte and King Properties at 1 unit per acre with a 10% imperviousness cap. Egan is shown with R200 zoning and with a 25% imperviousness cap. Miles/Coppola is shown with a balanced mixed use option with a 25% imperviousness cap with CR 0.5, C 0.25, R 0.25, H 75 zoning.

Summary of Plans

	1994 Planning Board Draft	1994 Council Approved Plan	2013 Public Hearing Draft	2013 Planning Board Draft
Egan	2-4 DU per acre (~300 units)	2-4 DU per acre (28%~300 units)	R200 (25%) (200 units)	R200 (25%) (200 units)
Miles/Coppola	7-11 DU per acre (~400 units)	MXPD (26%) (~60 units; 470k sf)	CR (25%) (0.5 FAR; ~850 units; 1 mil sf)	CR (25%)(0.75 FAR; ~850 units, 2.1 mil sf)
Fire Station	2-4 units/acre (12 units)	Build	Build	Build
Bypass	Build entire length	Build entire length	Build shorter	Build shorter
Clarkwood	Rural (est. 5%) (7 units)	RE1/TDR (12.5%) (34 units)	No Dev	No Dev
County Depot	Rural (est. 5%)	RE1/TDR & I-3	I-3 (8%)	I-3
County Detention	Institutional (est. 5%)	Institutional (15%)	Institutional (4.5%)	Institutional (4.5%)
Pulte	Rural (est. 5%) (107 units)	RE1/TDR (12.5%)(~800 units)	RNC (8% cap) (215 units)	RNC (10% cap) (538 units)
Impervious in LSTM110 , 111	~5%	15.1%, 14.1%	8.4%, 11.1%	10.1, 13.8%
Watershed Imp.	Est. 6-7%	9.8%	7.5%	8.0%

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

OFFICE OF THE CHAIR

January 2, 2014

Councilmember Roger Berliner
Chair, Transportation, Infrastructure, Energy & Environment Committee
Montgomery County Council
Stella B Werner Office Building
100 Maryland Avenue, 6th Floor
Rockville, Maryland 20850

Dear ~~Chairman~~ Roger Berliner:

In reply to the questions raised in your letter of December 12, 2013, I have the following responses:

1. **Why is Ten Mile Creek important to our County and/or to the region?**

   Ten Mile Creek is one of three remaining larger reference streams in the western portion of Montgomery County. The reference streams here are unlike those in the eastern part of the County because of differences in the underlying geology and soils. Having a number of reference streams in both parts of the County is important because it provides a more scientifically sound basis for assessing stream degradation from human activities, as opposed to stream changes due to local variations in watershed physical, hydrologic, or weather-related factors.

   As development has continued and extended into certain reference stream watersheds, the "best in the County" quality of some of those streams has declined to the point where many are no longer considered to be reference streams by DEP. While such streams may still exhibit "good" stream quality, they can no longer be considered in the "best in the County" category. If Ten Mile Creek degrades enough, the County will have lost another "best in the County" stream, leaving only two larger-sized reference streams in the western portion of the County. This will make it more difficult to assess degradation in other streams in this part of the County.

   According to a report by a panel of 17 technical experts in stream ecology, benthic macroinvertebrate and fish community assessments, Ten Mile Creek is one of the two most highly rated streams in Montgomery County. The experts included scientists from Montgomery County, the State of Maryland, the University of Maryland, the University of Maryland at Baltimore County, the Interstate Commission on the Potomac River Basin and U.S. EPA.

   Ten Mile Creek is also important to the County and the Washington metropolitan region because it is part of the Little Seneca Reservoir watershed. While Little Seneca

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Reservoir is not a direct source of local or regional drinking water, it does provide water that can be released in times of severe drought to help maintain minimum flows in the Potomac River. The much larger William Jennings Randolph Reservoir, in western Maryland, is another important source of release water during droughts.

2. **Ten Mile Creek has been referred to as a "reference stream". What is a "reference stream" and what qualifies a stream for this designation?**

Reference streams are those that show a high level of biological quality. While this places them in the highest stream quality category, it does not mean they are pristine, or show no degradation due to human activity. There are no pristine streams left in the County, but reference streams represent the highest County standard and provide a scientifically sound basis to compare them with more degraded streams, in order to better assess stream degradation from human activities. It is important to have a number of different reference streams to be able to understand changes in stream conditions due to local variations in watershed physical, hydrologic, or weather-related factors, as opposed to human activity-related factors.

All of the County's reference streams were selected through an interagency effort in the early 1990s using land use and biological monitoring data. Because of geological and soil differences between the eastern and western portions of the County, two sets of reference streams were identified based on geography. Watersheds that met screening criteria indicative of very high stream quality conditions were selected for detailed field assessments. The assessments located the stream segment in each candidate reference watershed that showed the best biological conditions. Once identified, these segments were designated as the reference reaches for the stream, and monitoring stations were established for them. However, since being designated, development has degraded the biological quality of some reference stream watersheds. As a result, they no longer cluster together with the other reference streams that have maintained their biological quality. When this happens DEP removes their designation as a County reference stream.

3. **What should our County's goal be with respect to the quality of Ten Mile Creek?**

The County is required to meet State water quality standards in all of its water bodies, comply with all Total Maximum Daily Loads (TMDLs) issued by the State, and prevent degradation of all State-designated Tier II streams. Ten Mile Creek and the Little Seneca Reservoir currently meet water quality standards, have no TMDLs, and no Tier II designation. Ten Mile Creek, however, is important to the County as a high-quality reference stream which will be negatively impacted by any new development.

While not officially adopted, it is the County's general policy to maintain or improve the quality of all its waters, although planned development in many parts of the County will further degrade some of its subwatersheds. For example, additional development in the I-270 corridor will affect the Seneca, Muddy Branch and Watts Branch watersheds. However, much of the County's new growth is focused on redevelopment. Converting previously developed land that lacks stormwater management will trigger new

stormwater requirements, resulting in improved conditions. In addition, the County is continuously improving older stormwater facilities in priority watersheds.

It is also important to answer this question in the context of the 1994 Clarksburg Plan, since it identified policy concerns that emerged following the completion of the 1968 Clarksburg and Vicinity Master Plan. Among many other policy statements identified in the introduction to the 1994 Plan are numerous references to environmental concerns, including:

Page 2 - "The critical importance of protecting environmental...resources."

Page 4 – "The streams, which flow to Little Seneca Lake, generally have good water quality; continuing the good health of these streams is a key concern of the Plan."

Page 6 – Included among the ten key policies for Clarksburg is: "This Plan recommends that Clarksburg's natural features, particularly stream valleys, be protected and recommends that Ten Mile Creek and Little Seneca Creek be afforded special protection as development proceeds."

Based on these and other statements in the 1994 Plan it would be reasonable to conclude that the County's goal should be to protect the quality of Ten Mile Creek. But the Plan also recognized, on page 12, the potential conflict between directing..."the major portion of Montgomery County's future growth to the Urban Ring and the I-270 Corridor" and protecting environmental resources in Clarksburg.

The 1994 Plan attempted to clarify that issue by stating: "Both the General Plan Refinement throughout the Environmental Goal [p. 70-73] and the 1992 Planning Act urge protection of sensitive areas. Addressing these two factors has been a challenge throughout the planning process. The balance struck by the Clarksburg Plan is to propose a transit-oriented town scale development largely east of I-270." (1994 Master Plan p. 12)

So the goal of protecting Ten Mile Creek in the 1994 Plan was offset by more intense development east of I-270. However, that tension should not negate the importance of protecting the quality of Ten Mile Creek – it merely suggests that a balance be reached, that also accommodates development.

4. **What was the basis of the Board's conclusion that our Council had requested you to "balance" issues pertaining to the environment and "community building"?**

Although Council members made a variety of statements at the session when the Council directed us to prepare this Plan Amendment, several common themes came through clearly: limit the geographic scope to the Ten Mile Creek watershed and do not consider other areas in Clarksburg; preserve the overarching visions of the 1994 Clarksburg Plan while protecting stream quality; and base planning recommendations on science. In light of the relatively small geographic area covered and our sense of the Council's direction,

the Board did not believe it appropriate to significantly modify the universal underpinnings of the 1994 Plan, many of which broadly apply to all of Clarksburg.

The planning principles for all of Clarksburg include its development as a corridor town, with a transit-oriented Town Center located in an area that was known to include the Ten Mile Creek watershed. The 1994 Plan established that development should ..." be staged to address fiscal concerns and be responsive to **community building and environmental objectives** (emphasis added)." (1994 Master Plan p. 14) Based on such an approach, which took into consideration the dual goals of protecting the fragile environment of Ten Mile Creek and creating the community identity envisioned in the Plan, the Planning Board sought a balance between environmental concerns and "community building" goals.

5. **If the Board had understood that the Council's request was primarily motivated by environmental concerns, would that have changed your recommendation, and if so, in what respects?**

It is not possible for me to say whether this would have changed the Planning Board's recommendation. The Board has five members who held varying views on the elements of this plan, resulting in lively discussions at our work sessions. I cannot say what the ultimate result of the debate would have been in a context different from the one that took place.

6. **What does "community building" mean precisely? In my judgment, it appears that what the residents of Clarksburg seek most of all is the fulfillment of the promise of the Town Center. Do you agree with that statement? How, in your judgment, would further development of phase four properties assist with "community building?"**

The idea of community building in Clarksburg is rooted in the interplay among the ten visions that are the foundation of the 1994 Master Plan. Those visions—a *Town Scale of Development*, protection of *Natural Features*, creation of a *Greenway Network*, development of a *Transit System*, a clearly defined *Hierarchy of Roads and Streets*, a sensitively designed *Town Center*, *Transit- and Pedestrian-Oriented Neighborhoods*, provision of *Employment* opportunities, *Farmland Preservation*, and *Staging* of development—enable Clarksburg's evolution from a rural crossroads into a Corridor Town. The visions are described on pages 15 to 36 of the 1994 Plan.

The thrust of these policies is creation of a clearly defined community that would include land uses ranging from agriculture in the western parts of Clarksburg to employment along the proposed Corridor Cities Transitway. While the Town Center is an important

component of community building in Clarksburg, all ten visions, working together, are needed to "complete" Clarksburg. Civic activities, such as a library, and nearby transit service would draw residents to the Town Center from the neighborhoods, where retail nodes would include grocery shopping and other routine needs. Community building was to be managed by a Staging plan that would balance provision of needed civic infrastructure with the pace of development, with a particular focus on early development of the Town Center and the need to undertake significant environmental monitoring before allowing development in the Ten Mile Creek watershed.

Development in stage four contributes to community building by providing opportunities for additional housing, commercial office and retail uses east of I 270, and by providing housing west of I 270 that helps create a transition from the Town Center west to the Agricultural Reserve. Each of these opportunities supports a vision of the 1994 Plan, and their interaction contributes to a complete Clarksburg.

7. **What was the basis of the Board's decision to override the staff recommendation with respect to the Pulte property?**

When the staff draft was presented to the Planning Board, certain members of the Board were concerned that the recommendations for the Pulte/King properties did not sufficiently support the goals of a complete Clarksburg, and that they represented such a significant departure from the density recommendations of the 1994 Plan as to be inequitable to property owners. As an exploratory effort, the Board asked staff to identify alternative ways to configure development on the property to minimize environmental impact while increasing residential yield to a level that would be closer to the level recommended in the 1994 Plan. This resulted in staff presenting the Board with a series of options regarding zoning, density and imperviousness limits. The Board chose the option that we felt was the best balance between protecting the sensitive natural resources in the Ten Mile Creek watershed and preserving the vision of the 1994 Master Plan.

8. **What impact would the staff's recommendation have on the quality of Ten Mile Creek if adopted?**

Staff's recommendations would result in the retention of more open space, a smaller development footprint, less grading and soil compaction, less forest impact, fewer impacts to steep slopes, significantly lower impervious cover in LSTM 110 and LSTM 111, and a somewhat lower overall Ten Mile Creek watershed imperviousness. As a result, impacts to Ten Mile Creek would be expected to be less, lowering the risk of reducing the biological quality of the Creek to a point where its status as a reference stream could be lost. This is especially the case because the confluences of LSTM 110 and LSTM 111 are just upstream from the monitoring station for Ten Mile Creek where

the status of the reference stream is monitored. Because of their close proximity to the reference monitoring reach, reducing future impacts to these subwatersheds is important in reducing the risks of degradation in the reference reach. In this case it is impossible to accurately predict the response of stream biological integrity to additional development. As a result, one can only speak in terms of lowering or increasing the risk of stream degradation.

Although Ten Mile Creek will likely remain in the "good" stream quality category under the proposed development, given the very high-quality nature and sensitivity of the stream's biology, in the opinion of State biologists there is still a significant risk of a level of degradation sufficient to lose its status as a reference stream. The staff draft recommendations also pose a risk, although it is a lesser risk.

9. **Does the addition of approximately 400 single family homes on the Pulte property, more than the staff had recommended, have a meaningful impact on "community building," particularly given the fact that there are more than 4,000 homes that haven't been built pursuant to authorizations in Phases 1-3?**

The concept of community building does not solely consider the number of units built or approved in Clarksburg. As noted above in the response to question six, the concept involves the interaction of ten master plan visions. West of I 270, creating housing between the more intensely developed Town Center District and the low-density residential and agricultural lands to the west establishes a land use transition that plays an important role in creating a complete Clarksburg. The Limited Amendment's recommendation for the Rural Neighborhood Cluster Zone on the Pulte-King properties allows creation of that housing resource while providing significant amounts of undeveloped open space to help protect water quality in the Ten Mile Creek watershed. It is the *zone* that meets the goals and objectives of the Clarksburg Master Plan, rather than any specific number of units.

10. **Does the Planning Board believe that a major retail center approximately ¾ of a mile from Town Center complements Town Center, and if so, in what ways?**

The Planning Department recently hired an economic development consultant to address that very question: determining whether the Town Center would benefit from a retail outlet center located near the I-270/MD 121 interchange. However, given the compressed schedule for the master plan, it was not completed in time to be reviewed by the Planning Board.

According to the consultant, "Outlet mall development in Clarksburg will dramatically increase consumer choice for local residents, especially for soft goods, apparel and accessories and home products, assuming the conventional mix of outlet retailers for projects of this type. While such development will displace some of the demand for traditional neighborhood local serving retailing, **there is also the potential for regional**

destination shoppers (many times the volume of what Clarksburg alone would generate) to patronize non-outlet mall retailing, with each source of demand more or less offsetting the other. The increased drawing power of an outlet mall will attract support and retail tenants that would not otherwise be supportable in a market the size of Clarksburg" (emphasis added).

The two product types, a more neighborhood-serving Town Center and a major retail outlet center..."function very differently from each other:

a) There is virtually no crossover in terms of food sold for home consumption, or for a wide range of convenience services.

b) While there are some parallels in soft goods (i.e. socks, cosmetics) that are typically part of a local serving grocery or drug store, the differences in shopping experiences associated with picking up these kinds of items as part of other purchases, and as they represent only a fraction of traditional neighborhood general merchandise sales, mutes the impact of non-grocery items on the economic viability of neighborhood supermarket and drug stores.

c) Neighborhood based dedicated clothing stores, considered unlikely to begin with given the size and locational characteristics of Clarksburg, will have more difficulty competing, as outlet malls typically are based on well known brands at discounted prices. Neighborhood clothing stores do not enjoy the same advantages of bulk purchase and corporate connections to secure manufactured goods/past season products at deep discounts.

d) Typical outlet malls include limited food offerings (usually in a food court configuration) primarily as a tool to retain consumers on-site in order to increase overall spending, as expenditures typically correlate with amount of time spent at the center. Freestanding restaurant offerings, not a core use in outlet malls, represent the most potential intermixing between serving both outlet / neighborhood sourced demand.

e) Entertainment uses serving local residents (i.e. movie theaters) are less likely as part of the outlet center mix, particularly if reliant strictly on local based demand, and may or may not be an additional element in some future outlet mall setting."

11. **What was the Planning Board's recommendation regarding the intensity of use on the Miles-Coppola property in 1994 (prior to the Council's actions) and how does that compare with what the Planning Board is recommending in this plan?**

The Planning Board Draft of the 1994 Plan recommended residential development on the approximately 100-acre Miles-Coppola properties. It recommended development at nine to 11 units to the acre on the central and southern developable portions of the property, and seven to nine units to the acre on the northern developable portion, for a total of 416 dwelling units. The current Planning Board Draft recommends mixed-use development in the CR Zone at an overall density of 0.75 Floor Area Ratio (FAR) on the hundred acres. Each CR zone classification is followed by a sequence of symbols, CR, C, R, and H, and

related numbers. The number following the CR is the maximum total FAR, the number following the C is the maximum non-residential FAR, the number following the R is the maximum residential FAR, and the number following the H is the maximum building height in feet. The precise designation for the Miles-Coppola property is CR 0.75, C 0.5, R 0.5, H 75. For the Miles Coppola properties, an FAR of 0.75 equals about 3.2 million square feet of development. A project that maximized commercial development could achieve 2.1 million square feet of commercial space; the remainder, another million square feet, would yield 850 units at 1,250 square feet per unit.

12. **If an outlet mall or other retail were to proceed on the Cabin Branch property, is there need for more retail on the Miles-Coppola property to serve the residents of Clarksburg? Has the Board had a retail analysis performed, and if so, could you please provide a copy of that analysis?**
What is the relative commercial viability of the two proposed retail outlet centers? What were the results of the consultant report which examined the issue?

Both questions are quite similar and the following attempts to answer both. In addition, the consultant's findings will be transmitted to the County Council for review.

Outlet Malls

"Based on market demographics, current industry trends, and locational considerations, Clarksburg is a very strong candidate for outlet mall retailing. The two outlet proposals, backed by leading national sponsors of such development, are resounding endorsements."

"Over the past few decades outlet malls have morphed into a highly structured breed of retailing. It is one of the few retailing concepts that it still in a growth mode. Retailers and branded product manufacturers have expanded their merchandizing lines to incorporate specifically targeted marketing strategies suited to co-locating in high profile locations overseen by major, specialized retail developers. The contemporary prototype outlet center is fairly simple, and universal:

- 80 to 100+ stores, comprised of mostly nationally or regionally recognized specialty vendors
- 4,000 sf average store size
- 350,000 sf to 500,000 sf overall size
- easy access highway served site
- typically a lower cost, suburban edge location
- regional and transient market capture (not at all neighborhood oriented)
- internal orientation
- lots of surface parking, but not designed for quick in and out access to stores
- located / configured to maximize multiple store shopper patronage (and not non-shopper use)

- limited if any table service restaurants (idea to keep people shopping); sometimes have pad sites for free-standing food services on out parcels
- typically located in isolation from competing outlet centers (though with exceptions)"

"That Clarksburg has been now targeted by the two leading outlet mall developers (Simon and Tanger, in partnership with local master developers) is an entirely natural and understandable focus. But for proximity to Montgomery County, most all submarkets ringing the Washington metropolitan region have an existing or planned outlet or equivalent center. These include the older and/or much larger Mills centers (Potomac Mills and Arundel Mills), a new Tanger outlet mall opening in Oxon Hill in Prince George's County near Alexandria, an existing Premium Outlets (Simon) in Leesburg, an additional planned center in western Fairfax County, and proximate centers further afield in Maryland in Hagerstown and Queenstown (smaller example)."

"With a Clarksburg outlet facility, currently underserved consumers, reaching well beyond the borders of Montgomery County stand to benefit, as will the tenant vendors, and for that matter, the tax collectors that will not only see some inflow of retail expenditures, but some reduced outflow of Montgomery County resident shoppers. Barring some national or other extraordinary influence, the question is not whether an outlet center will come to Clarksburg, but rather, which one?"

"The developers of both proposed retail outlet centers have indicated that there is demand for only one such commercial enterprise in the immediate area. The consultant sees no reason to refute or test this claim. There is little taste on anyone's part (developer, tenant or for that matter consumers) for essentially duplicated co-existing malls: the market for such is limited by the simple fact that there are only so many profile credit tenants to go around. While there is limited precedent for dual locations, (one being outside St. Louis, Missouri and another in San Marcos, Texas), it is rare for two major centers to go ahead at the same time in close proximity to each other. (Interestingly, the competing Simon and Tanger sponsors have actually co-ventured in at least one instance.)"

"The core composition and use of an outlet mall is almost the complete opposite of neighborhood serving retailing. The vendors, and with some narrowly defined exceptions, the product lines, would never normally be found in a neighborhood shopping center dominated by food and convenience related merchandizing. The outlet patronage is coming from a widely extended region, intent usually on making substantial purchases spanning multiple stores over a considerable period of time, the converse of the typical neighborhood in-and-out kind of shopping venture."

13. **Several of the fundamental underpinnings of the original Clarksburg master plan have not and seem unlikely to materialize in the near to mid-tem future including Clarksburg serving as a major employment center and having sufficient transit options. What impact, if any, should that have on our deliberations regarding the scope of development that should be permitted in Phase 4? What is the relevance of the vision of the 1994 Plan in today's market?**

    Clearly, all of the elements of the 1994 Plan vision for Clarksburg have not been completely realized for a number of reasons. These include the recent downturn in the economy and housing market, major shifts in office employment, and the lack of significant transit service on the I-270 corridor. However, the vision for Clarksburg should be viewed in its totality, as the interrelationship between the ten key policies that are represented in the 1994 Plan, and not just a few select components.

    While the questions about gaps in fulfilling the vision for Clarksburg and the vision's relevance in today's market are important, they are more relevant when viewing all of Clarksburg. The Planning Board was charged with a focused look at Clarksburg - one that pays attention to just the Ten Mile Creek watershed and not the entire Planning Area. Such a perspective must assume that all of the policies making up the vision for Clarksburg remain important, intact and relevant. While the questions posed about the future Clarksburg are important and should be asked, they should also be answered within the context of a more global view of the Clarksburg Planning Area.

14. **Testimony was given stating concerns regarding the impact of degradation of Ten Mile Creek on the aquifers in the area. Did the Board review that issue, and if so, what conclusions did the Board reach, and what technical support did the Board receive on this issue, if any?**

    The Board heard the same concerns at its Ten Mile Creek public hearing. In compiling public testimony and responses for the Board regarding this issue, staff consulted groundwater and hydrogeology specialists in the Department of Permitting Services and the Maryland Geological Survey.

    The staff response pointed out that in the fractured rock aquifer in Montgomery County, groundwater, like surface water, generally flows in response to surface topography, and mimics the flow patterns of surface streams within a watershed. This means that groundwater flows on the east side or the west side of the creek mainstem will flow to the creek, but not across the mainstem to the other side of the watershed. As a result, even if impacts to groundwater from stormwater infiltration practices do occur on the east side of TMC, they should not affect the existing wells on the west side of TMC, much less the other portion of the Piedmont Sole Source Aquifer, which includes many watersheds that are all hydrogeologically separated from TMC.

The proposed new development will be on public water and sewer, which will replace well and septic systems of the existing rural properties east of the TMC mainstem, reducing any current groundwater impacts from the removed septic systems. In addition, ESD requirements will serve to infiltrate stormwater, which will greatly reduce negative impacts to groundwater flow levels compared to traditional stormwater practices.

The Planning Board concurred with the staff response on this issue.

15. **In your testimony, you noted that the safety of drinking water is assured by the region's water treatment facility. However, the WSSC testimony argued that "water treatment alone is not a panacea for delivering safe water and that a multi-barrier approach is needed to protect water at every step of its trip from source to faucet, with source protection as its first step." Do you believe that the Board's plan adequately addresses what WSSC describes as the "first step" in the safety of our water supply?**

Yes. The Planning Department has long recognized the vital importance of source water protection in safeguarding our drinking water supply, and has worked with WSSC in the general plan and area master plans for many years to accomplish this goal. This is especially true in the case of potential impacts to the region's drinking water supply reservoirs, such as the Patuxent Reservoirs. Drinking water supply reservoirs are the most critical and require the highest level of attention in minimizing potential impacts.

It is important to note, however, that as DEP and the Interstate Commission on the Potomac River Basin (ICPRB) have pointed out, the Little Seneca Reservoir is not an emergency drinking water supply. It is a water body designed to provide water that can be released in times of severe drought to help maintain minimum flow requirements in the Potomac River. Another important source of release water to maintain minimum flow in the Potomac in times of drought is the much larger Jennings Randolph Reservoir, which is located in western Maryland.

Little Seneca Reservoir, however, is still an important component in the overall regional water system and needs to be protected, so taking the "first step" of source protection was an important factor in the draft Ten Mile Creek Plan recommendations. The Planning Board recognized that any increase in developed area within a watershed will result in increased impacts to receiving water bodies, so an approach was taken that recommended significantly less development in Ten Mile Creek than was recommended in the 1994 Clarksburg Master Plan, along with reduced development footprints, higher retention of open space, greater forest retention, less grading and soil compaction, fewer impacts to steep slopes, significantly lower impervious cover in LSTM 110 and LSTM 111, and a significantly lower overall Ten Mile Creek watershed imperviousness.

Furthermore, reviews by environmental staff from DEP, WSSC, and ICPRB of the recommended future development in Ten Mile Creek, along with an accompanying pollutant loading analysis, indicated no significant concerns regarding potential

development-related reductions in surface or groundwater flows to the reservoir, or in increased loadings of nitrogen, phosphorus, and sediment. Technical staff from these agencies indicated that because of the reservoir's limited role in a much larger system, proposed development in the reservoir watershed does not threaten the region's drinking water supply, nor would potential additional pollution loadings from the proposed development cause it to fail to meet State Water Quality Use standards for drinking water reservoirs. DEP reiterated this position at one of the Planning Board's worksessions on the Ten Mile Creek Draft Plan. At that worksession, DEP staff stated that if Ten Mile Creek is protected, the reservoir will be protected for its intended purpose. They further indicated that the proposed actions in the draft plan that protect resources from over-development, combined with the use of ESD where development does occur, would serve to protect Ten Mile Creek.

At the September 26, 2013 Board worksession, WSSC staff reiterated that the reservoir currently meets State water quality standards, and emphasized that the reservoir should be protected from sediment and nutrient inputs from new development. To do this, WSSC staff stated the importance of protecting the reservoir watershed through sound land use planning and management, limiting new impervious cover, protection of natural resources, providing environmental buffers, and the use of ESD. This was precisely the approach taken in developing the Ten Mile Creek Planning Board Draft Plan recommendations.

16. **The reservoir has already been degraded by sediment due to development around Germantown, resulting in three fore bays that limit sediment being more than half full. How much more sediment does the Board project will be added to the reservoir as a result of development in Stage 4?**

The Little Seneca Reservoir has not been significantly degraded by sediment. In the case of the fore bays, their intended purpose is to capture sediment before it enters the reservoir proper. They have been effectively performing this function for 30 years without yet needing to be dredged. The reservoir can hardly be considered to be significantly degraded because the fore bays are doing their job. To this can be added the results of the most recent sedimentation accumulation study by the Maryland Geological Survey, which reports very little sediment accumulation in the reservoir outside of the fore bays, with only about a 3% loss of reservoir capacity as of 2010.

The studies also show that at current sedimentation rates, the fore bays should have decades of service left before they will need dredging. Future increases in sediment inputs, however, could shorten the time for the fore bays to fill in. But since the proposed development in Ten Mile Creek is much less than the existing development around Germantown and will use ESD, which was not used in the earlier Germantown development, significant increases in sediment contributions to the reservoir are not expected.

17. **The Council heard testimony regarding the possibility of algae blooms in the reservoir. Fresh water algae blooms are generally the result of an excess of nutrients which enter watersheds from runoff. Did the Board consider this issue, and if so, could you provide the Board's conclusions with respect to it?**

The levels of nutrients that result in algae blooms are generally those that exceed water quality standards for drinking water reservoirs. The Board did not consider this issue because it did not need to in view of the current high water quality of the reservoir, the results of the pollutant loading analyses which indicate low additional potential loadings from new development, and expected future low sedimentation rates (which will continue to limit phosphorus contributions from sediment). These factors are consistent with the reservoir continuing to meet water quality standards (see responses to questions 15 and 16). As long as the reservoir continues to meet water quality standards, there should be no significant levels of algae growth in the reservoir.

I hope this information is helpful to the joint committees' consideration of the Limited Amendment to the Clarksburg Master Plan.

Sincerely,

Françoise M. Carrier
Chair, Montgomery County Planning Board

cc:
Montgomery County Councilmembers
Montgomery County Planning Board Members
The Honorable Isiah Leggett
Bob Hoyt, Director, Department of Environmental Protection
Marlene Michaelson, Council Staff

Biohabitats
Brown AND Caldwell
A Joint Venture

November 20, 2012

TASK ORDER No. 1

M-NCPPC Montgomery County Planning Department

TO:	Brown and Caldwell / Biohabitats, a Joint Venture
CONTRACT NO.:	
SUBJECT:	Clarksburg Master Plan Limited Amendment for the Ten Mile Creek Watershed

PURPOSE:

The Consultant will provide data and environmental analysis of the Ten Mile Creek watershed for development scenarios in support of the Clarksburg Master Plan Limited Amendment for the Ten Mile Creek Watershed. This information will be compiled and scientific information and recommendations will be clarified so that documents can be understood by the lay reader.

SCOPE:

A. Data Discovery

The Consultant will review existing data and reports provided by the Planning Department and Montgomery County Department of Environmental Protection (DEP). This will include DEP monitoring data; data collected by Planning from other sources (e.g., Clarksburg Monitoring Partnership, Audubon Naturalist Society, Maryland Department of Natural Resources, U.S. EPA, USGS, etc.); draft NRI/FSD submittals; GIS data; and field data collected by Planning Department and DEP staff.

The Consultant will prepare digital maps using available data illustrating the following features:

- Geology
- Soils
- Topography
- Topology
- Morphology
- Surface Water (streams, wetlands, ponds)
- 100-year floodplain and stream buffers
- Vegetation cover
- Rare and unique plant communities
- Rare, Threatened and Endangered Species
- Historic and cultural sites
- Federal, State and County resource protection areas
- Infrastructure (sanitary sewer, water, cable, roads, electric, transmission, etc.)
- Biological Monitoring and Habitat Index Scores for SPA stations

- Water temperature
- Geomorphology

The Consultant will review the draft maps for completeness and accuracy and summarize baseline watershed conditions. Field plans for collecting additional data will also be developed, if deemed necessary by the Planning staff. The Consultant will also participate in a kick off meeting with Planning Department and other agency staffs.

Deliverables:

- Maps/data and summary of environmental conditions
- Participation in kick off meeting
- PowerPoint slides of existing conditions

B. Data Collection

The Consultant will conduct limited field investigations to supplement existing data and verify watershed conditions. The focus of these investigations will be to identify priority areas for conservation (e.g., spring seeps, forested areas, wetlands, and tributaries), potential restoration and enhancement of resources and localized impacted areas (e.g., I-270 stormwater runoff, impacts from agriculture). Field investigations under this task may extend over several months in support of additional data needs identified during Task C. Also included is the preparation of several representative stream cross sections, if currently unavailable. The Consultant will not conduct monitoring or sampling.

It is assumed that the physical condition of Ten Mile Creek (e.g., bank stability, embeddedness, etc.) will be characterized by Planning and DEP staff from available data or during their limited field investigations. Planning and DEP staff will also conduct a synoptic flow study.

Deliverables:

- Electronic copies of all field notes, data collection forms, and analysis spreadsheets
- GIS layers, as edited or new information
- Recommendation for additional field work

C. Analysis

C.1 Spatial Watershed Analysis

Using the spatial data compiled as part of Task A, the Consultant will define attribute characteristics that have the potential to either influence the landscape's ability to recover from disturbance, or that are critical to long term ecological stability and integrity. These may include:

- Soil characteristics (e.g., highly erodible soils, highly permeable soils, shallow soils)
- Steep slopes
- Seeps and springs

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- Streams (perennial and intermittent) and wetlands (+regulatory buffers)
- 100-yearfloodplain
- Rare and unique plant communities and corresponding buffers
- Rare, threatened and endangered species habitat and corresponding buffers (based on existing data or data collected by Planning and DEP staff)
- Federal, State and County resource protection areas
- Public recreation features
- Sensitivity of streams to channel erosion and enlargement

A series of maps will be generated which the Consultant will overlay to determine the landscape's ecological stability and integrity and its ability to support development. This analysis will help delineate potential development and resource protection zones.

The Consultant will prepare a GIS map illustrating this analysis, with supporting maps and a brief memo documenting the methodology used to prepare the suitability boundaries. Colored maps will include:

- Ecological Attributes Inventory Maps
- Ecological Conditions Analyses Maps
- Development Suitability and Resource Protection Map
- Constraints and Opportunities Map

The Consultant will also analyze trends in biological and habitat data for similar Special Protection Area (SPA) watersheds within Montgomery County. This analysis will help inform anticipated impact projections of development on Ten Mile Creek. The consultant, in conjunction with Planning and/or DEP staff, will select monitoring stations within existing SPAs that meet the following criteria:

- Whose watershed size is similar to that of Ten Mile Creek
- Who have numerous years of monitoring data pre and post construction (min five years pre construction and three years post construction)
- Whose land use pre construction was similar that of Ten Mile Creek
- Whose records are complete in that they contain the habitat data sheets and individual IBI metric scores
- Whose underlying geology is similar to that of Ten Mile Creek
- Where a stream gauge is located nearby in order to ascertain the affects of hydrology on the macroinvertebrate population and whose period of record extends back to the earliest macroinvertebrate sampling event that is being analyzed

Comparisons will be made to trends of IBI scores pre and post construction to determine if negative effects can be attributed to the development within the watershed. The consultant will evaluate overall IBI score trends as well as trends within the individual IBI metrics pre and post construction. Habitat assessment data sheets will also be evaluated from the same biological monitoring stations to determine pre and post construction trends in overall, and individual metric, scores. Due to the infrequent nature of fish sampling at biological monitoring stations, as well as the intermittent nature of

headwater streams, FIBI scores and metrics will not be evaluated. However, the presence of insectivorous fish may be analayzed to determine effects on insect populations from predation. In addition to evaluating biological monitoring data for sites in developed watersheds, the consultant will also make comparisons to trends in nearby reference sites.

C.2 Summary of Current Data Regarding Watershed Responses to Development using ESD/LID

The Consultant will identify and assess other studies that document the impacts of development on drainage basins using ESD/LID. Also included will be a summary of the current state of knowledge - including a comparison of typical instrumented or monitored watershed responses to development using traditional stormwater management BMPs. Potential parameters include analyzing changes to erosion/sediment control, reforestation and storm water management regulations and new laws that were not in place during the development of Special Protection Areas. The assessment will also include new state requirements that set additional standards and limit grading to 20 acre increments.

This analysis should seek to characterize the potential difference between past studies of imperviousness to stream health and the potential impacts of the same level of imperviousness under the new regulations. The Consultant will collect data through the NPS listserve and professional contacts, and a literature review.

C.3 Development of Watershed Protection Toolbox for Construction and Post-Construction Phases

The Consultant will describe the major types of watershed protection measures and strategies that could be used to preserve ecological resources in the Ten Mile Creek watershed. This information will be compiled primarily to support the development of land use scenarios in Task C.4. The following types of measures may be included:

- Parcel/site/ development scale (e.g., enhanced ESD beyond that defined and required in the MD Design Manual, vertical construction, etc.)
- Stage 4 scale (e.g., stream buffers, ecological covenants, residential pollution prevention, etc.)
- Watershed scale (e.g., forest conservation, stream buffers, agriculture management)
- Seasonal protections (migrations, spawning, etc.)

C.4 Analysis of Land Use Scenarios

The Consultant will evaluate scenarios developed jointly with Planning Department and agency staff. They will be provided to the Consultant in GIS format to evaluate potential impacts on Ten Mile Creek. The number of scenarios and degree to which each is analyzed will be determined by agreement between the Planning Department and the Consultant based on the analysis tools used. Time consuming analyses will be limited to key scenarios that will act as sensitivity tests for a range of scenarios.

For each scenario, the Consultant will conduct the following evaluations:

- Annual pollutant load analysis using the Watershed Treatment Model
- Hydrologic analysis evaluating the range of peak discharges and runoff volume within the Ten Mile Creek area at the subwatershed and watershed scale
- Landscape corridors and patches
- Estimate of natural land cover lost and restored (or enhanced)
- Estimate of agricultural land affected
- A comparison of the development scenarios to the Spatial Watershed Analysis results including likely impacts to the landscape and other resources identified

The Consultant will summarize the results of these analyses and will develop inferences on regarding the potential responses of Ten Mile Creek to proposed development under ESD/LID in terms of hydrology, stream channel response, water quality and biology. The Consultant will also evaluate the effectiveness of ESD practices given local conditions.

C.5 Comprehensive Assessment Report

The Consultant will produce a final report that documents all analyses and identifies potential impacts to Ten Mile given the different development scenarios and potential enhancements to watershed protection. This should include recommendations about options for balancing the effects of development and environmental protection of Ten Mile Creek.

Deliverables:

- Comprehensive Assessment Report

D. Public Outreach

The Consultant will provide technical support to the Planning Department throughout the process. This shall include:

- Attendance at weekly progress meetings (in person or teleconference)
- Attendance at three work sessions with Planning, Parks and County staff
- Attendance at three public meetings
- Attendance at three Planning Board work sessions
- Attendance at one public hearing
- Attendance at one County Council session

The Consultant will also prepare PowerPoint, graphics and maps in support of the process. Planning will schedule and organize all meetings, including reproduction and distribution of meeting materials.

The Consultant will provide expert testimony if authorized as an additional service.

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A joint venture

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Deliverables:

- Attendance at all meetings by one Consultant staff member

TASK ORDER SCHEDULE:

See attached MS Project Gantt Chart and associated Project Calendar.

COMPENSATION:

The Commission shall compensate the Consultant for Basic Services performed under this Task Order based on the hourly rates contained in the Contract for a not-to-exceed amount of $XXX. The County will not pay any mark-up or fees on Other Direct Costs (ODC). This not-to-exceed compensation amount is fixed for the duration of the Task Order unless changed by a Task Order Amendment.

Payments for Services shall be made monthly in accordance with the terms and conditions of the Contract. Below is a fee summary for the not-to-exceed amount.

TOTAL FEE SUMMARY	Total Fee
A. Data Discovery	$ 22,880.34
B. Data Collection	$ 21,909.68
C. Analysis	$ 123,390.15
D. Stakeholder Outreach	$ 31,809.44
	$ 199,989.61

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Technical Memorandum

Prepared for:	Maryland-National Capital Park and Planning Commission
Project Title:	Limited Amendment to the Clarksburg Master Plan
Subject:	Draft Response to September 9, 2013 Geosyntec Letter
Date:	October 15, 2013
To:	Mary Dolan and Valdis Lazdins, Montgomery County Planning Department
From:	Biohabitats and Brown and Caldwell, a Joint Venture

Introduction

The purpose of this technical memorandum is to provide preliminary responses from Biohabitats and Brown and Caldwell, a Joint Venture, to certain technical comments raised by Geosyntec in the letter dated September 9, 2013 to the Montgomery County Planning Board entitled *Clarksburg Master Plan Limited Amendment – Ten Mile Creek Area*.

As an initial matter, it is our understanding that the purpose and scope of the Joint Venture modeling effort was to provide high level (planning level) modeling in conjunction with related assessments to assist the Planning Department in evaluating general impacts of development within the entire Ten Mile Creek watershed area. In this context, the modeling effort was appropriately limited, was based on area-wide assumptions, and its conclusions were consistent with other analyses (summarized in the July 2, 2013 report entitled *Ten Mile Creek Watershed Environmental Analysis in Support of the Limited Amendment to the Clarksburg Master Plan*) in concluding that the Ten Mile Creek Watershed area could be impacted by additional development.

As discussed previously, the planning level modeling approach used accepted modeling techniques along with various assumptions and inputs. More detailed modeling using data inputs representing site-specific conditions may be appropriate as part of a later development review process for a specific site design and stormwater management concept plan review. However, predictions made by any modeling approach will vary from actual post-development conditions due to a variety of factors (e.g., variations in site conditions, stormwater management approach, design parameters, and other variations at individual development sites). This is one of the key reasons that planning scale modeling with a margin of safety was an appropriate tool to use as part of the important land use decisions currently being considered in the Ten Mile Creek watershed.

In addition, although we have not conducted a detailed review of the Geosyntec modeling efforts for Pulte, and we express no opinion concerning the validity of any conclusions contained in its report, it is important to note that Geosyntec's efforts appear to relate only to the specific areas within the watershed (LSTM110 and LSTM111) where we understand Pulte proposes development. In turn, many of the concerns and questions raised by Geosyntec also relate to differences between planning level versus site-specific modeling efforts.

Discussion

For the purposes of this draft response, comments were categorized as those relating to the existing conditions models, and those related to the simulation of environmental site design (ESD). Other comments related to site-specific stormwater management design considerations have been addressed in the Planning Department's previous responses to questions and testimony.

Geosyntec Comment: Existing conditions model results are well outside of independent predicted results and norms for the area....The MNCPPC's consultant's model appears to grossly underestimate peak flow rates in LSTM110 and LSTM111.

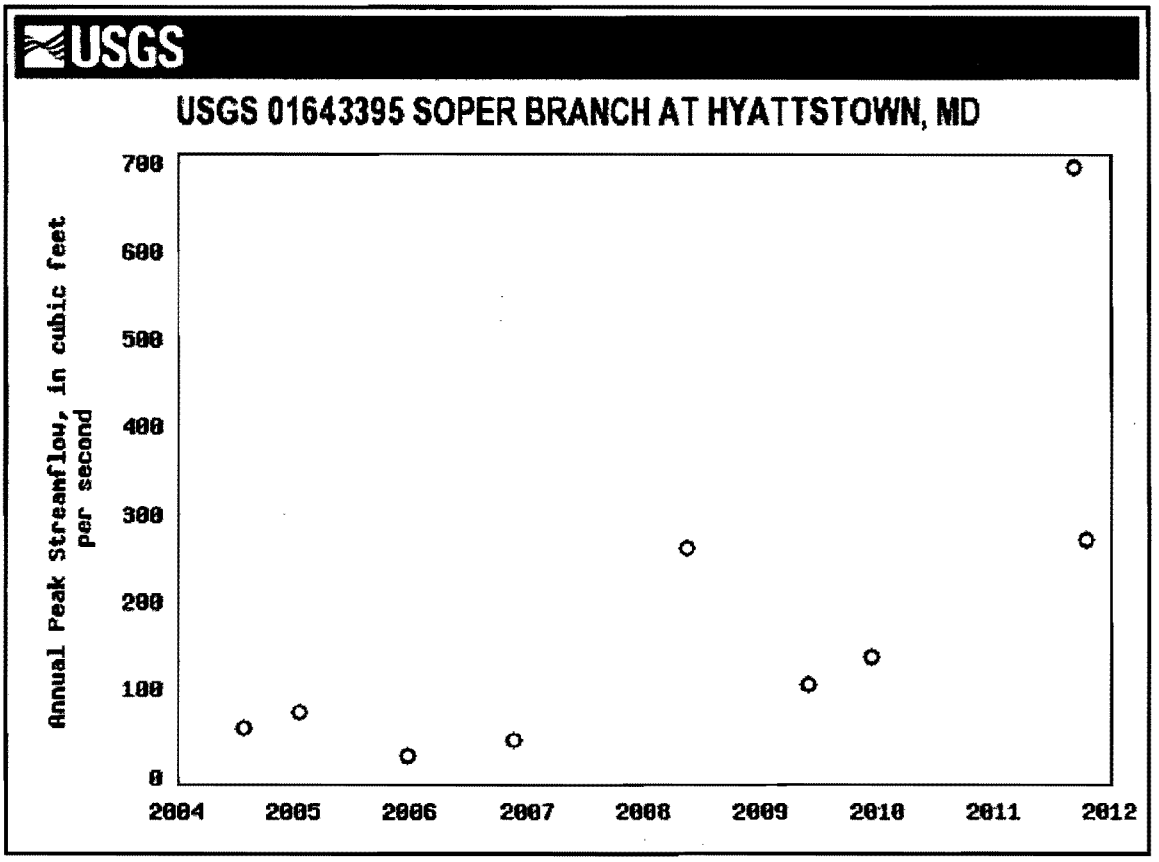
Response: We do not agree that the model grossly underestimated existing condition peak flow rates in LSTM110 and LSTM111.. Predicted peak flow rates are sensitive to various model algorithms and parameters, and can vary widely even within the range of accepted modeling methods and parameter values. The actual peak flow rates in LSTM110 and LSTM111 are unknown. Therefore, it is possible to arrive at different modeled predictions of peak flows under existing conditions. The Geosyntec comment letter cites three bases for comparison of predicted peak flows in LSTM110 and LSTM111:

1. USGS regression equations
2. Area-scaled continuous gage data from USGS gage 01644390—Ten Mile Creek Near Boyds, MD
3. Independent SWMM modeling

The USGS Regression Equation quoted by Geosyntec is several years old. USGS has updated the regressions and present data on the USGS stream statistics web site (http://streamstatsags.cr.usgs.gov/md_ss/default.aspx?stabbr=md&dt=130239302542270000). For a basin in the vicinity of the basins in question, this web site suggests a peak 2-yr flow of about 50 cfs for the 211-acre basin 110, which is greater than the value predicted by the Joint Venture but less than the value cited by Geosyntec. The Geosyntec model predicts peak 2-year flows twice the older USGS values and three times the more recent values.

Geosyntec used area-scaling from the Ten Mile Creek gage to validate their model results in continuous simulation noting that their model results were consistent with the area scaled peak flows during Tropical Storm Lee (9/8/2011). This gage is measuring flows from large areas of land use dissimilar to the largely undeveloped land uses found in LSTM110 and LSTM111 and a simple area scaling may be inappropriate. That aside, a better comparison may be achieved if the model outputs were contrasted with the full gage record so that smaller events nearer a one or two year occurrence could be assessed.

Much lower peak flows might be estimated if the area-scaling analysis used data from watersheds more similar in size and characteristics to LSTM110 and LSTM111. For example, the Soper Branch gage near Hyattstown, MD (01643395; (http://waterdata.usgs.gov/nwis/dv/?site_no=01643395&agency_cd=USGS&referred_module=sw) measures streamflows from an undeveloped watershed of about 750 acres. Application of the area-scaling method to this gage would result in peak 2-year streamflow estimates for the 211 acre LSTM110 of 30 to 40 cfs. This estimate was made by taking the 4th largest annual peak flow in the area-scaled 9-year record. This represents a rough estimate because the record is relatively short, but it reflects the characteristics of the watershed. The Soper Branch data are shown below.



Other methods of estimating the existing system peak flows are available. For example, the U.S. Fish and Wildlife Service (McCandless and Everett, 2002) has developed regional regression curves to estimate bankfull discharge and channel geometry for streams in the Maryland Piedmont. Bankfull discharges are relevant to the analysis because they generally correspond to events with a return frequency of 1-2 years (Rosgen, 1996). McCandless and Everett (2002) provide the following equation for estimating bankfull discharges in the Maryland Piedmont:

$$Q_{bkf} = 84.56\ (DA)^{0.76}$$

Where:

Q_{bnk} = bankfull discharge (cfs)

DA = drainage area (mi^2)

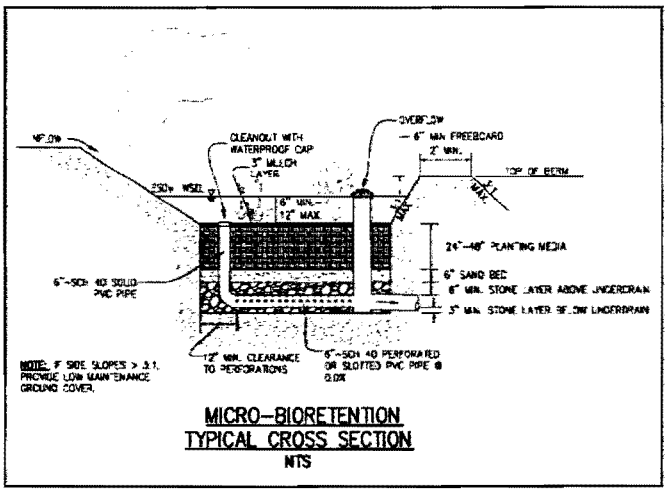
Application of this method to subwatershed LSTM110 and LSTM111 provides bankfull discharge estimates of 36 and 21 cfs, respectively. These values are significantly lower than Geosyntec's estimates of peak flows for the 1- and 2- year storms.

Some of Geosyntec's criticisms of the planning-level model are related to the use of the SCS method and specific runoff curve numbers. The SCS method is a widely-accepted approach for planning level hydrologic modeling, and the curve numbers used in the planning-level model are within the range of published values for the land uses and soil types present. The selection of different infiltration algorithms, parameters, or model configuration would indeed affect the prediction of peak flows. While it can be argued that the existing condition peak flows in the Joint Venture analysis should have been higher for modeling purposes, we are aware of no basis to accept the estimates cited by Geosyntec that are three or more times higher than alternative estimates. Most importantly, even using USGS values, the analysis would still have shown significant increases in peak flows resulting from development.

***Geosyntec Comment:* Infiltration rates do not represent actual soil conditions within the ESD...we do not believe MNCPPC's model is consistent with the descriptions in the MNCPPC Report and does not accurately represent the storage and infiltration occurring within ESD measures.**

Response: Geosyntec is correct that there are inconsistencies between the report and the manner in which ESD practices were actually modeled. However, these inconsistencies do not invalidate the ESD simulation, nor greatly affect the predicted peak flows. The following response clarifies the manner in which the ESD practices were modeled, and why these represent reasonable assumptions for a planning-level modeling analysis.

Future development runoff was estimated using a 100% impervious catchment representing impervious surfaces, and a pervious catchment using the same SCS technique as for the base condition for estimation of infiltration with a larger SCS curve number representing soil disturbance. The reduced undeveloped area was modeled using the same parameters as the existing condition runs. The runoff from these developed catchments was routed to two additional catchments (#4 and #5) to account for ESD controls as described below. The model attempts to simulate the County's micro-bioretention standard as shown below:



MICRO-BIORETENTION
TYPICAL CROSS SECTION
NTS

In these ESDs, storm inflow infiltrates through planting media and is collected in the underdrain for discharge. If the inflow exceeds the infiltration capacity of the planting media then excess flow is stored up to a specified depth before discharging out the overflow-largely bypassing the underdrain media.

Catchment #4 (Ponding Volume)

Runoff from the developed catchments is routed to catchment #4, which represents the volume available for ponding above the planting media. This catchment is configured with a total area equivalent to the expected area according to County standards. It was assumed to be 100% pervious area with Horton Infiltration and depression storage of 9-inches. Infiltration occurs to the planting media and excess flow that cannot infiltrate is stored up to a specified depth. The model specification of a 9-inch depression storage simulates the storage available above the planting media.

The 9-inch depression storage and Horton infiltration parameters were arrived at based on discussions with Montgomery County DPS and through consideration of public comments from previous Montgomery County Planning Board work sessions. The 9-inch depression storage value is the mid-point of the depression storage range noted in the County's Micro-Bioretention standard detail. Maximum and minimum Horton infiltration values were based on published values (Akan 1993) and can be found in the "XPSWMM Technical Reference Manual".

Catchment #5 (Directly Routed to Outlet)

In the model, outflow from catchment #4 was directed to catchment #5 for storage in the planting media and underdrain. As (incorrectly) described in the modeling report, this catchment represented storage in the filter media. As pointed out by Geosyntec, because this catchment was modeled as 100% impervious, no storage or infiltration occurred in catchment #5, and all flow to this catchment was directed to the outlet. This simulates the overflow of water from the ponding area into the outflow pipe as shown on the schematic above. An equivalent result would have been attained by directing the outflow from catchment #4 directly to the outlet.

Inclusion of catchment #5 with 100% imperviousness results in an increase in system outflow volume as noted by Geosyntec, due to the double-counting of rainfall on the ESD area. Once the infiltration and storage capacity of catchment #4 is exhausted, excess flow is directed to catchment #5 in the model where it runs off. This would not appreciably affect peak flow estimates, because the timing of these flows does not coincide with peak runoff flows from catchment #4. Infiltration at the bottom of the ESD in this configuration is simulated by the infiltration in Catchment #4 which is lost from the solution.

In summary, the manner in which catchment 5 was modeled did not greatly affect the peak flow predictions, which are largely controlled by the rate at which water is predicted to overflow the ponding area of catchment #4 into the outflow pipe. Infiltration from the bottom of the ESD is indirectly simulated by the infiltration in catchment #4. In permitting ESD, the County's assumption is that the underdrain allows water to freely flow from that structure once it reaches the underdrain. Under this assumption, it would not be proper for catchment #5 to include additional storage to account for water leaving the underdrain and entering the filter media or a stone reservoir. If the ESD practice were designed in a manner to cause the overflow to enter the stone reservoir (below the underdrain) prior to entering the underdrain, it would be appropriate to simulate the effect of some storage in the stone reservoir.

Conclusion:

The Joint Venture conducted its modeling for the Limited Master Plan using widely-accepted industry practices. The modeling approach, model parameters and assumptions were developed in collaboration with the Planning Department, Department of Environmental Protection (DEP) and Department of Permitting Services (DPS) to represent average watershed-wide conditions, as is appropriate for planning-level land use evaluations. Although Geosyntec questions the modeling results, model simulations are sensitive to selected algorithms and parameters, and model predictions may vary widely even within the range of accepted modeling methods and parameter values. And even if the Joint Venture estimate of existing condition peak flows had been higher based on USGS estimates, the analysis would still have shown a significant increase in post-development peak flow using the County's standard ESD details. Importantly, in concluding that the Ten Mile Creek Watershed could be impacted by additional development, the results of the Joint Venture modeling were consistent with the other environmental analyses and conclusions conducted and provided in support of the Limited Amendment to the Clarksburg Master Plan. .

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Plan Concept	Make no changes to the 1994 plan		1994 Master Plan-represents the correct balance between community building, county housing policy, economic development and environmental protection. (Robert R. Harris and many other individuals)	The County Council asked the Planning Department to consider how to achieve both goals. Their concern was based on earlier failed attempts by a task force and a working group of agencies and stakeholders to avoid any changes to the plan by using the regulatory process.	Concur with staff
Plan concept	Make significant changes to the master plan.		Do not defile the last clean watershed in the county for development of no lasting significance and certain harm. (Royce Hansen)	The Public Hearing Draft balances community building goals with a reasonable risk to the watershed. Key resources are protected and the development footprint is minimized. A substantial amount of new forest will be planted and the streams restored where damage has occurred.	Concur with staff that it is necessary to continue to find a balance.
Environ-ment E-1	Water Quality of Ten Mile Creek		New development in the TMC watershed will seriously degrade the chemical and physical quality of TMC. (Save Ten Mile Creek Coalition, Audubon Naturalist Society, Sugarloaf Mountain Association, Livable Clarksburg Coalition, MD Native Plant Society, Montgomery Countryside	The State of Maryland and scientific literature recognize that ESD cannot prevent all negative development impacts and that high-quality watersheds are best protected by limiting development and applying ESD. This is at the core of the recommendations. ESD is now required and will be used for any new development in TMC. ESD is intended to mimic the hydrology of wooded land and to treat and infiltrate about 90% of the rainfall in an	Concur with staff that new development should not be rejected out of hand

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			Alliance, Boyds Citizens Association, Seneca Creek Watershed Partners, Coalition for Smarter Growth, Neighbors of Northwest Branch, and many other individuals)	average year (up to the 1-year storm). Planning-level modeling done by the M-NCPPC consultant shows some potential impacts to stream hydrology for development under the 1994 Plan, and fewer potential hydrological impacts for a recommended reduced development footprint in subwatersheds 110 and 111, along with the protection of key forest resources. ESD is intended to improve hydrological performance, but there is no expectation by state and local environmental agencies that it will prevent all negative impacts to stream biological health, particularly in high-quality watersheds. (See response to E-3.) Maintaining hydrology similar to wooded land for up to the 1-year storm is expected to significantly reduce the risks of stream channel erosion and sedimentation. Many pollutants in stormwater will be filtered and reduced by ESD practices. Exceptions to this are mobile pollutants such as road salt and to a degree nitrogen, which ESD practices will transmit directly to groundwater.	
E-2	Water Quality in Ten Mile Creek		None of the scenarios in the draft master plan will serve to protect Ten Mile Creek because TMC will	See the responses to E-1, E-3, and E-11, and E-21.	See other responses

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			degrade to below water quality standards. (Ephraim King)		
E-3	Biological Health of Ten Mile Creek		New development in the TMC watershed will seriously degrade stream biological health and will result in the loss of TMC as one of the last 3 known larger-sized reference streams in western M.C. (Save Ten Mile Creek Coalition, Audubon Naturalist Society, Sugarloaf Mountain Association, Livable Clarksburg Coalition, MD Native Plant Society, Montgomery Countryside Alliance, Boyds Citizens Association, Seneca Creek Watershed Partners, Coalition for Smarter Growth, Neighbors of Northwest Branch, and many other individuals)	Stream biological health is highly related to the amount of disturbance in a watershed. As yet, there have been no watershed-scale studies that have assessed the biological impacts of ESD. Although ESD is a significant improvement over older SWM practices, MDE has made no assumptions for ESD regarding biological responses nor biological performance standards. The State and the scientific literature recognize that ESD cannot be expected to prevent all negative biological impacts from development. Development under the 1994 Master Plan in subwatersheds 110 and 111 may disqualify TMC from its current status as a reference stream based on selection criteria for reference streams in the County. However, the staff recommended reduced development footprint and enhanced natural resource protections may result in TMC remaining a reference stream based on those criteria, and by limiting negative impacts to the stream's biology. (See also the response to comment E-4.)	Informational
E-4	Biological Health of Ten Mile Creek		TMC is a pristine stream and the best quality watershed in	(See response to E-10.) All streams in the County have been negatively impacted by	Informational

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			the County, and is the standard against which all other streams are judged. (Save Ten Mile Creek Coalition, and many other individuals)	human activity. But some relatively undeveloped watersheds, including TMC, are still in good to excellent condition compared with other streams. According to DEP, TMC is not the best quality watershed in the County, but it is considered one of the best. As such it is one of a number of high-quality streams used as reference streams to be compared with more degraded ones. This allows a comparison of changes in reference stream conditions that are not related to development impacts, such as climate change. Staff recommendations help reduce the development footprint to a level that reduces the risk of losing TMC as a reference stream.	
E-5	Biological Health of Ten Mile Creek		TMC will degrade from a Good to Excellent rating for stream biological health, to Fair or Poor. (Save Ten Mile Creek Coalition)	This conclusion is based on a misapplication of a regression analysis done by DEP in 2003, which looked at the statistical relationship between impervious cover and stream biological health. The regression line that DEP calculated cannot be used (the way STMCC is using it) to predict a specific stream condition score from an imperviousness value without also stating the confidence interval for the estimated regression score (a +/- range of values) about the estimate. The purpose of the regression line is to show the general statistical downward trend in	Informational

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				stream condition with increasing impervious cover.	
E-6	Biological Health in Ten Mile Creek		Subwatershed 206 is currently in Fair condition. With proposed improvements to stormwater management proposed by Peterson/Tanger, and the removal of negative agricultural impacts, along with targeted stream retrofits and restoration, the biological health condition of this subwatershed will improve into the "Good" category. (Soltesz, Peterson/Tanger)	There is no basis for an assertion that using ESD will improve the biological health of subwatershed 206 to a specified degree because it cannot erase the impact of all existing uses. If enough currently poorly-controlled existing development is retrofitted, then some improvement in stream health could be expected. But whether the improvement would be sufficient, especially in light of the degree of grading and forest removal, to improve the stream health to "good" is unknown. Stormwater management, stream restoration and forest planting in the stream buffers might offset impacts from new development, but improvement over existing conditions is unlikely. (See response to E-3.)	Informational
E-7	Biological Health in Ten Mile Creek		Staff and its consultants should not have included protection of ephemeral streams because they are already protected by EPA and the Army Corps of Engineers. (Peterson	Ephemeral streams are those that only flow during or shortly after storm events. They do not flow long enough to provide habitat for stream aquatic life, and are not afforded any regulatory protection under County codes or environmental guidelines. They are, however, a part of the natural drainage network and can be locally important, in watersheds with thin soils like TMC, in maintaining wetlands, groundwater flows and base flows in the free flowing	Informational

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				streams. The Army Corps of Engineers, in a few relatively rare cases at the local development level, regulates some ephemeral streams that meet certain criteria. Local jurisdictions can, however, be more stringent than federal or state agencies, in protecting natural resources. Because of the unusually sensitive and high-quality nature of TMC, staff recommendations regarding ephemeral streams are appropriate.	
E-8	Water Quality and Quantity of Little Seneca Reservoir		New development in the TMC watershed will seriously degrade chemical water quality and quantity and add sediment to the Little Seneca Reservoir, compromising its role as an emergency water supply. (Save Ten Mile Creek Coalition, Audubon Naturalist Society, Sugarloaf Mountain Association, Livable Clarksburg Coalition, MD Native Plant Society, Montgomery Countryside Alliance, Boyds Citizens Association, Seneca Creek Watershed Partners, Coalition for	The Little Seneca Reservoir (LSR) provides supplemental (release-type) water to augment Potomac River flows in case of severe drought conditions. When water is released from the reservoir, it flows downstream to the Potomac River. Withdrawals for water supply are made at downstream Potomac water intakes. As a result, the LSR is not a direct source of drinking water like the Patuxent Reservoirs, and LSR water is mixed with a much larger volume of Potomac River water before withdrawal. The LSR is monitored for chemical water quality and sedimentation by WSSC. So far, data collected by WSSC, the State, and the MD Geological Survey show that the water quality of the LSR is very good and exceeds all State standards for drinking	Concur with staff

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			Smarter Growth, Neighbors of Northwest Branch and many other individuals)	water reservoirs. Studies show that most of the sediment that enters the LSR, including from the developed portion of Cabin Branch watershed, is captured by sediment forebays designed for that purpose. The studies also show that the forebays are about one half full at this time, with decades of service left before they will need dredging, at current sedimentation rates. Future increases in sediment inputs, however, could shorten the time for the forebays to fill in. In addition, the most recent sedimentation accumulation study by the MD Geological Survey indicates very little sediment accumulation outside of the forebays, with only about a 3% loss of reservoir capacity as of 2010. In July 2013, WSSC environmental staff reviewed the M-NCPPC consultant modeling results and verbally informed M-NCPPC staff that, based on the modeling results, the potential level of new development in the TMC scenarios poses no significant threat to the water quality or quantity of the LSR, and would not cause it to fail to meet State Water Quality Use standards for drinking water reservoirs. At the 9/26 Worksession, WSSC staff reiterated that the reservoir currently meets	

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				State water quality standards, and emphasized that the reservoir should be protected from sediment and nutrient inputs from new development. To do this, WSSC staff stated the importance of protecting the reservoir watershed through sound land use planning and management, limiting new impervious cover, protection of natural resources, providing environmental buffers, and the use of ESD. At the 9/26 Worksession, DEP staff echoed these points, and added that the reservoir is not an emergency drinking water supply, but serves to help maintain minimum flow in the Potomac River in times of severe drought. Because of the reservoir's limited role in a much larger system, proposed development in the reservoir watershed does not threaten the region's drinking water supply. DEP staff also added that if Ten Mile Creek is protected, the reservoir will be protected for its intended purpose, and indicated that the proposed actions in the draft plan that protect resources from development combined with the use of ESD where development does occur would serve to protect Ten Mile Creek.	
E-9	Water Quality and Quantity of Little Seneca Reservoir		Little Seneca Reservoir is a backup release-type drinking water	(See responses to E-1, E-3, and E-8.)	See other responses

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			supply that depends on the continued health of TMC. Implementing the Staff Draft would threaten the reservoir. (Save Ten Mile Creek Coalition)		
E-10	Water Quality and Biological Health of Ten Mile Creek		We can't get the high reference-stream quality of TMC back once it is allowed to degrade. (Save Ten Mile Creek Coalition, and many other individuals)	Staff agrees. In the case of a reference stream like TMC, the extent of the planned development footprint should, as much as possible, reduce the risk of losing TMC as a County reference stream by limiting disturbance and using ESD. (See response to E-3)	Informational
E-11	Water Quality and Biological Health of Ten Mile Creek		Science points to allowing no development in TMC. (Save Ten Mile Creek Coalition, and many other individuals)	Science points to no development in TMC if the only goal is to avoid all negative impacts to natural resources and stream biology due to new development. In addition, science suggests that if development in a high-quality watershed is also an important goal, then the approach should be to limit development as much as possible, in combination with ESD. This recommendation is based on the expectation that ESD will not prevent all impacts to receiving ecosystems, especially to stream biological health. (See response to E-21.)	Informational

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E-12	Water Quality and Biological Health of Ten Mile Creek		In such a sensitive area as TMC, allowing the maximum density possible would be risky. (Priscilla Borchardt)	Staff recommendations focus on reducing development in TMC from the levels recommended in the 1994 master plan, which will help reduce risks.	Informational
E-13	Water Quality and Biological Health of Ten Mile Creek		Critical headwaters of TMC would be destroyed by development. In particular, the most sensitive and highest quality portions of TMC, subwatersheds 110 and 111 will be ruined. (Save Ten Mile Creek Coalition)	(See responses to E-1, E-3, E-8, and E-18.)	See other responses
E-14	Water Quality and Biological Health of Ten mile Creek		Neighborhoods between Rte. 121, West Old Baltimore Road and Clopper Road, bordering Little Seneca Lake in Black Hill Regional Park are not included in any studies of water quality. Water quality and protection of ground water supply (Cheryl Imperatore)	Those areas do not fall within the TMC Limited Master Plan Amendment study area, as defined by the County Council and this plan does not change land use or zoning there. The areas drain directly to the lake and not to the free-flowing part of the Creek which is most directly affected by the proposed development. (See response to E-18.)	Informational
E-15	Water Quality and Stream Biological compared to other Watersheds		The County has had successes in maintaining high quality streams in Upper Paint Branch and Upper Rock Creek through limiting development, open space requirements,	Staff has recommended a similar strategy for TMC. As a result, successes similar to those seen in Upper Paint Branch and Upper Rock Creek can be reasonably expected in TMC.	Concur with staff

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			and imperviousness caps. (Save Ten Mile Creek Coalition)		
E-16	Water Quality and Biological Health compared to other watersheds		As with Clarksburg Stages 1-3, the Watts Branch has declined despite assurance from the developers. High sediment and bacteria loads have resulted in WSSC relocating the Potomac water intake away from Watts Branch. (Save Ten Mile Creek Coalition)	(See the response to E-8.)	See other responses
E-17	Stream Gauge Data		Data from stream gauges show that under current conditions, peak flows in TMC are flashy and that storms can be much more intense than ESD design storms. (Cathy Wiss)	In a sensitive, high-quality watershed like TMC, this is another reason for recommendations that combine limiting the development footprint and imperviousness in key areas, along with the use of ESD.	Informational
E-18	Ground-water		New development in the TMC watershed will seriously degrade ground water quality and quantity in TMC and the Piedmont Sole Source Aquifer. (Save Ten Mile Creek Coalition, Audubon Naturalist Society, Sugarloaf Mountain Association, Montgomery	It is important to note that, like surface water, groundwater generally flows in response to surface topography, and mimics the flow patterns of surface streams within a watershed. As a result, even if there were groundwater impacts on the east side of TMC, it would not affect the existing wells on the west side of TMC, much less the other portion of the Piedmont Sole Source Aquifer, which includes many watersheds that are all geo-	Concur with Staff

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			Countryside Alliance, Boyds Citizens Association, and many other individuals)	hydrologically separated from TMC. In the case of potential development in TMC, any new development will be on public water and sewer, including replacement of many existing septic fields. This will significantly reduce any ongoing groundwater contamination from existing septic systems. Reports from various owners of existing wells in the western portion of the County of reduced flows have been and will continue to be mostly drought-related, and will not be adversely affected by the potential new development in the eastern portion of TMC.	

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E-19	Ground-water		The TMC watershed is critical to the Piedmont Sole Source Aquifer. Unwise development threatens this resource and the 62% of the up-County population on well water. (Save Ten Mile Creek Coalition)	(See response to E-18.)	See other responses
E-20	Water Quality and Sewer Service		Proposed sewer service will seriously degrade water quality and stream health in TMC. (Save Ten Mile Creek Coalition, Audubon Naturalist Society, and many other individuals)	According to the Chesapeake Bay pollution model used by the EPA, groundwater pollution for septic systems is a greater overall threat than that associated with sewer lines. Any new development in TMC will be on public sewer, will remove many of the existing septic systems, and provide better groundwater protection than new developments on septic systems. In addition, most typical stream valley impacts from gravity sewer lines will be limited in TMC because the sewage will be collected and pumped over to the adjacent sewer system in the Cabin Branch watershed.	Concur with staff
E-21	Science basis of recommendations		Recommendations in the plan amendment should be science-based. (Save Ten Mile Creek Coalition, and many other individuals)	From the beginning of the planning process for the TMC master plan amendment, M-NCPPC staff has followed the Council's request to base recommendations on the best scientific knowledge available, and the best planning-level modeling feasible in the short time-frame available for this plan. It is important to note,	Informational

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				however, that staff was also directed to weigh community-building goals in its recommendations as well. Staff recommendations considered the results of an extensive review of the scientific literature on the relationships between land use, land cover, development, traditional stormwater management, hydrology, and ESD on the physical, chemical, and biological health of streams on local and watershed scales. Staff recommendations also considered the results of planning-level hydrologic modeling, a spatial analysis of natural resources, a pollutant loadings analysis, and DEP findings..	
E-22	Science basis of recommendations		None of the proposals under review by the Planning Board are based on the best science available, and all of them would lead to degradation of the creek. (Save Ten Mile Creek Coalition)	(See response to E-11 and E-21.)	See other responses
E-23	Science basis of recommendations		Staff attempts to justify major downzoning for the Pulte property on claims about forest conservation, wildlife protection, and other objectives that are beyond the scope of the water	Staff was directed by the County Council to base the planning analysis and recommendations on science. Because stream quality and stream biological health (which is used as an indicator of overall water quality) are influenced by everything that exists and occurs in a	Informational

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			quality analysis work prescribed for the master plan study. (Robert Harris)	watershed, all aspects need to be considered to fulfill the Council's directions. This has also been the case for other master plans for decades. (See the responses to E-21 and E-53.)	
E-24	Natural Habitats		The natural habitats and environment of TMC should be preserved. (Save Ten Mile Creek Coalition, and many other individuals)	According to the spatial analysis of natural resources done in support of the plan amendment, under the 1994 master plan, most development would occur on open agricultural land. Some upland and interior forests outside of stream and wetland buffers, however, would be impacted. The staff recommendations, which utilize a reduced development footprint, would further minimize negative impacts to existing forest.	Informational
E-25	Climate Change		There is no consideration of the increasing intensity of drought cycles or severe weather patterns. (Save Ten Mile Creek Coalition)	Studies by the Interstate Commission on the Potomac River Basin indicate that, given climate change trends, it is likely that future storm events may increase in intensity and frequency, possibly combined with droughts of increased severity. At present, the imperfect understanding of climate in general, and climate changes over long periods of time makes it difficult to assess the potential future role of climate change as part of this limited master plan amendment. The planning-level modeling indicates that there will not be significant reductions in flow to TMC or the Little Seneca	Concur with Staff

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				Reservoir by using ESD. (See response to E-8.) If climate change does have an adverse effect on TMC and the reservoir, it will be similar to that which would have resulted under existing conditions.	
E-26	Impervious Cover		Paved areas in new development will serve to funnel damaging runoff during storms that are larger than the one-year design storm required by ESD regulations. (Save Ten Mile Creek Coalition)	(See responses to E-1 and E-33.)	See other responses
E-27	Impervious Cover		A key question left open is the net overall amount of impervious surface for the watershed in the recommended option. (Save Ten Mile Creek Coalition)	Estimated impervious cover for the overall TMC watershed and its subwatersheds are projected to be approximately 7.8% if all properties develop per the proposed plan.	Change to 8% and allow additional development on the Pulte/King properties
E-28	Impervious Cover		The Staff Draft plan analysis that assumed 15% imperviousness for the County property is erroneous. Staff acknowledges that the County property will remain largely if not totally undeveloped. (Robert Harris)	No specific plans are available for the County property. The 1994 plan established an impervious cap of 15% for the property and the Public Hearing Draft recommends an 8% cap.	Limit to 4.5% on Detention Center properties and 8% on the remainder of County properties
E-29	Impervious Cover		Staff and its consultants should be using Effective Impervious Cover	Effective Impervious Area (EIA) (impervious area directly connected to a receiving water body) is very difficult to	Concur with staff

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			estimates instead of Total Imperviousness Cover. (Peterson)	accurately and consistently measure due to different degrees of impervious cover disconnection, and it excludes areas that can still have negative environmental impacts (such as natural areas that are developed and then drain to stormwater management facilities). As a result, EIA does not take into account the impacts that supposedly "disconnected" impervious areas can still have on watershed and stream health. EIA is used in some parts of the country, but usually for retrofitting existing impervious cover in already degraded watersheds to improve biological health. Its application should not be to allow more development in sensitive high-quality watersheds, justified by the use of ESD. Because Total Impervious Area (TIA) is easily measured and is a statistically valid indicator of overall development impacts, TIA is generally used to measure impervious levels for watershed protection strategies such as imperviousness limits. This is consistent with the County and State policies of not granting credits for the use of BMPs towards meeting	

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				imperviousness limits in specially designated high-quality watersheds or critical areas.	
E-30	Imperviousness Caps		A 6% imperviousness cap will be effective in protecting TMC and will sufficiently protect streams, and allow some additional development. (STMCC Proposed Option #6) (Save Ten Mile Creek Coalition)	Imperviousness caps are strategies to lower the risk of negative impacts from development in high-quality watersheds, but there is no way to predict environmental outcomes. A 6% cap may lower risk to TMC, in the opinion of some, but other 1994 Master Plan goals need to be considered. While it may be true that a 6% cap "... will allow some additional development to occur", will that additional development be enough to meet other community-building goals? At current TMC imperviousness levels, about 4.1 %, it is doubtful that an additional 1.9% imperviousness could do that.	Concur with Staff
E-31	Imperviousness Caps		Cap imperviousness at current levels. This is the only way to ensure that TMC is not degraded by development. This is consistent with all the science and County experience. (Save Ten Mile Creek Coalition)	This option would not allow any new development in TMC, and other community-building goals could not be realized. This would suggest that the County purchase all land within the TMC watershed. (See responses to E-11 and E-21.)	Concur with staff
E-32	Development on Farm Fields		Most of Pulte's development would be on existing farm fields. The analysis ignores the fact that farming creates significant adverse impacts to TMC,	Developing on open fields is better than clearing forests. About 20 years of stream monitoring experience indicates that even with about 50% of TMC in open agricultural land, it remains a County reference stream in	Concur with staff

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			which would be eliminated by using ESD. (Robert Harris, Soltesz)	the "good" to "excellent" range for stream biological health. Although agriculture can negatively impact streams, in Montgomery County those impacts appear to be relatively minor, especially when compared with more developed parts of the County. The opinion of State agencies and scientific literature is that for high-quality streams, like TMC, an approach that combines limiting development and using ESD is recommended.	
E-33	Environmental Site Design		ESD regulations only require controlling up to the 1-yr storm, and will not control larger storms. (Save Ten Mile Creek Coalition, and many other individuals)	Controlling stormwater, as required, up to the 1-year storm will control most rainfall events (approximately 90% of storms are less than that modeled) that occur in an average year. Though when only storms up to the 1-year event are controlled, runoff from larger ones will bypass ESD practices. In some cases, other options are available, as determined by DPS, of going beyond the 1-year storm control requirement. Doing this has the potential to provide some degree environmental protection beyond ESD, but is not required to meet State and County ESD standards.	Informational
E-34	Environmental Site Design		The decline of Little Seneca Creek from "excellent" to "fair" despite BMPs in Stages 1-3 provide proof that engineered BMPs do not compensate	The stormwater management approach in Stages 1-3 was a combination of older methods and ESD-type practices. In Stages 1-3, mass grading was also used. Biological monitoring does show that stream biological degradation	Concur with staff

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			for forest destruction and indiscriminate grading of land. (Anne Ambler, President, Neighbors of Northwest Branch)	in Stages 1-3 has occurred. In TMC full ESD will be used, in conjunction with grading that is staged in 20 acre increments. Although this new approach is expected to have fewer negative impacts to stream biology, a decline in stream biological health with ESD is still expected (see response to E-3). This is why the staff recommendations are consistent with MDE and the scientific literature in recommending an approach that reduces the development footprint, combined with ESD.	
E-35	Environmental Site Design		Current recommendations place too much faith on Environmental Site Design (ESD) to address stormwater and protect stream health from development. (Save Ten Mile Creek Coalition)	The plan recommendations go beyond ESD to protect key resources and promote stream restoration. (See responses to E-1, E-3, and E-8.)	See other responses
E-36	Environmental Site Design		Developers have promised that a mix of conventional and ESD-type BMPs would maintain the high quality of the creek, but the creek has declined. (Save Ten Mile Creek Coalition)	(See the response to E-34.)	See other responses
E-37	Environmental Site Design		The Staff Draft plan cherry-picks from proven measures for protecting the area in question. National, State, and local scientists, and	Staff used a variety of sound land use planning analyses and techniques to support the draft plan recommendations. These included spatial analysis of natural resources, maximizing protection of	Informational

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			hard-earned experience calls for sound land use planning that fully protects critical areas. (Save Ten Mile Creek Coalition)	forests and open space, a reduction in development footprints, and the use of the Rural Neighborhood Cluster zone. For more regarding sound land use planning in TMC, see responses to E-11 and E-21.	
E-38	Environmental Site Design		The Planning Board has not been shown information that justifies a significant change from the 1994 master plan, and the analysis is not in a position to confirm that ESD regulations adopted by MDE and the County are incapable of protecting the water quality of TMC. (Soltesz)	(See responses to E-1, E-3, E-4, E-8, E-11, E-21, and E-33.)	See other responses
E-39	Environmental Site Design		Now that ESD is required, there is no need for any limit on development or impervious cover. ESD will prevent all negative impacts from development. (Robert Kauffman, Soltesz, and others)	(See response to E-3.) Based on State guidance and the scientific literature on ESD and development impacts to stream biology, limiting development and limiting total imperviousness, combined with the use of ESD, remain important tools for watershed protection, especially in sensitive, high-quality watersheds.	Concur with staff
E-40	Environmental Site Design		In all Staff Draft scenarios the biological health of the TMC mainstem will be in the "good" range. It is acknowledged that these results do not reflect potential	This statement misses the fact that the category of "Good" covers a range of about 20 biological health score points, which covers a wide range of biological quality. As a result, an unacceptable amount of biological degradation can occur within the "good"	Informational

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			benefits of ESD. If proposed development results in a "good" stream health rating for TMC, development should be able to proceed. (Soltesz, Robert Harris)	range. Although the analysis only used data from traditional stormwater management, the point is that because ESD is not expected to be able to mitigate all impacts to stream biological health, a more conservative approach to watershed protection is justified.	
E-41	Environmental Site Design		Potential future impacts are based on faulty assumptions that I-270 will be widened, and that no stormwater management or ESD will be included in the project. (Robert Harris)	Because the widening of I-270 is planned, it must be factored into the evaluation of environmental impacts. Because much of I-270 in TMC was built on fill and with significant slopes to the west, there is inadequate room for road widening or stormwater retrofits except for within the median. This leaves insufficient room for full ESD on the remaining land. Moreover, any ESD practices would likely be on compacted fill, which significantly reduces effectiveness. The modeling assumed that traditional stormwater practices would be applied when the road is widened.	Informational
E-42	Environmental Site Design		The studies performed by M-NCPPC consultants have not demonstrated that water quality has declined since the 1994 master plan, or protection measures have become less effective. Because ESD better protects water quality, there	Because of ESD, water resource protection measures have indeed improved since 1994. But it is the opinion of the State and the scientific community that although ESD does a better job of environmental protection, it was never intended to be a remedy for all development-related impacts, and there is no reason to believe that it will do so, especially in terms of stream biological health.	Informational

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			is no justification to recommend any land use changes at this time. (Robert Harris)	ESD was developed to improve site design and stormwater management by improving the hydrology of developed sites. But total environmental health depends on more than hydrology. There are almost no data on a watershed-scale that assesses the impacts of ESD on stream biology. Consequently, MDE made no assumptions regarding specific biology responses to ESD, and set no biological performance standards for ESD. As a result, the State and the weight of scientific opinion in the literature recommend using an approach that combines limiting development and using ESD as much as possible.	
E-43	Environmental Site Design		The use of treatment trains will significantly improve the effectiveness of ESD as required in the County. (Soltesz, Jody Kline)	It is the opinion of DPS staff that treatment trains are not a part of ESD, as required by the State, and therefore will not improve the effectiveness of ESD. ESD practices are micro-scale structures that are designed to control and treat the runoff to regulatory standards from small drainage areas. This strategy does not lend itself to the treatment train approach, which was sometimes used with the larger-scale stormwater practices of the past.	Informational
E-44	Environmental Site Design		M-NCPPC staff and their consultant have ignored the direction to consider ESD requirements and other state-of-the-	Staff were directed to develop a limited master plan amendment, which involves a planning-level analysis of potential impacts and risks to natural resources. Both the hydrologic model and the	Informational

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			art water quality protection measures that would be used by the Pulte property, and which would have affirmed the decision made in 1994 that the recommended development for Ten Mile Creek would protect the water quality. (Robert Harris)	pollutant loading model assumed the use of ESD with some simplifying assumptions and using Montgomery County standards. This does not include a level of hydrologic analysis that is appropriate for actual detailed site plans. Such detailed analyses are typical of the development review stage, not the master plan stage. The ESD design standards used in the M-NCPPC consultant's model, however, were vetted with DPS staff as consistent with State and County ESD requirements.	
E-45	Environmental Site Design		The impacts of ESD have not been demonstrated on a watershed scale. (Ephraim King, and many others)	Although watershed-scale hydrologic modeling of ESD has been done, actual monitored responses to ESD on a watershed-scale, especially changes in stream biological health, are almost non-existent. This is confirmed in the scientific literature, along with the general expectation that even if ESD succeeds in mimicking the hydrology of wooded land, there will likely still be negative impacts to stream biological health, especially in sensitive, high-quality watersheds like TMC. These were important considerations that were factored into staff recommendations.	Informational

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E-46	Modeling Results		The analysis of individual segments or subwatersheds of TMC is misplaced. The Council's direction was to evaluate potential water quality and other environmental impacts in TMC as a whole, not to focus on individual segments. (Robert Harris)	The County Council directed M-NCPPC staff to evaluate the TMC watershed using a scientific approach, and using the best scientific information available. The only way to scientifically evaluate a watershed for existing conditions and potential impacts associated with change in land use is to evaluate subwatersheds and their individual and cumulative roles in watershed quality and health. This approach is the norm in the scientific community and literature, and has been the norm for M-NCPPC studies and master plan analyses. (See response to E-21.)	Informational
E-47	Modeling Results		The M-NCPPC's consultant's hydrologic model is too coarse, uses incorrect assumptions, and is not representative of the detailed site plan and specific ESD layouts possible on the sites. (Geosyntec)	See the responses to E-37 and E-53.	See other responses
E-48	Modeling Results		The M-NCPPC consultant's existing condition model appears to grossly underestimate peak flow rates in subwatersheds 111 and 110. This fundamentally undermines the conclusion drawn by the M-NCPPC	The actual peak flow rates in LSTM110 and LSTM111 are unknown, and predictions of peak flow rates under existing conditions are sensitive to various model algorithms and parameters, and can vary widely within the range of accepted modeling methods and parameter values. (See response to E-49.) But it is important to note that	Concur with staff

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			consultants in comparing between existing and proposed conditions models. (Geosyntec)	even if a more detailed hydrologic analysis shows that a specific site design and ESD layout can mimic the hydrology of wooded land, it doesn't mean that there will be no degradation of TMC and its tributaries, especially to their stream biology. (See response to E-45.)	
E-49	Modeling Results		Geosyntec compared M-NCPPC's consultants modeling results for both subwatersheds 110 and 111 with three other methods: 1) a USGS regression equation for ungauged watersheds in MD, 2) area-scaled continuous gauge data from the USGS gauge on TMC, and 3) Geosyntec's own modeling of the watershed. All three of these methods show significant departures from the values obtained by the M-NCPPC consultants. (Geosyntec)	Regression equations for hydrologic parameters are generally not very accurate, and are typically used as a very general guides in the absence of modeling results, and not for design purposes or for verification of detailed modeling results. Although Geosyntec provided no confidence intervals for their reported USGS regression estimates, review of the original USGS paper indicates that the 95% standard error of prediction for peak flows is +/- 78% of predicted values. This confirms the low accuracy of the USGS regression equation for peak flows. Area scaling to estimate hydrologic parameters is likewise known to provide only rough estimates, and again, is typically used as a general guide in the absence of modeling results—not as a confirmation of modeling results. The degree of area scaling done by Geosyntec (from a 4.5 mi^2 watershed to 0.33 mi^2 and 0.16 mi^2 watersheds) represents a significant extrapolation	Informational

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				beyond the gauged data used, with increased and un-quantified uncertainty associated with the results. Detailed hydrologic modeling using specific site plan designs and ESD practices is not appropriate for planning studies, see the response to E-48. Moreover, a USGS stream gauging station is located immediately adjacent to TMC in a small tributary that is very similar to subwatersheds 110 and 111 in size and land use. It would have made more sense to use the gauge data for the smaller tributary for comparison with 110 and 111, than the gauge on the much larger TMC watershed. Using the larger watershed for comparison purposes introduces more error.	
E-50	Modeling Results		The proposed Pulte ESD design will reduce the peak flow rates during the 1 and 2-year design events below existing condition flow rates. (Geosyntec)	Although current baseflow in TMC is not what would occur if the entire watershed was forested, it is in a healthy equilibrium with the existing mix of forest and agricultural open land. As a result, the current high-quality stream biology and channel are adapted to the current hydrologic flow regime. It is important, especially in high-quality watersheds, that ESD not significantly reduce or increase baseflow, or other key hydrologic parameters. If, as claimed, proposed ESD will reduce peak flow values below existing conditions, it	Informational

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				would do so by increasing infiltration over existing levels. If that occurs, then a corresponding increase in baseflows in TMC and its tributaries could result that could potentially be detrimental to stream biological health.	
E-51	Modeling Results		In the case of subwatersheds 110 and 111, significant design work has already been completed by Soltesz for the Pulte property. It is possible to achieve stream protection using accurate existing conditions peak flows, reasonable infiltration rates, regulatory compliant recharge volumes, and appropriate ESD design assumptions. (Geosyntec, William F. Hunt)	(See responses to E-37, E-38, E-39, E-42, and E-49.) In addition, subwatersheds 110 and 111 are located just upstream of the County's reference monitoring station for TMC. Development in these subwatersheds under the 1994 master plan could potentially disqualify TMC as a County reference stream based on non-biological reference stream criteria, or because of subsequent biological decline. (See responses to E-3 and E-53).	See other responses
E-52	Modeling Results		Neither Soltesz nor Geosyntec were able to get details of the data inputs and other information that were used by M-NCPPC's consultant. Geosyntec's assessment of M-NCPPC's consultant's analysis was based only on	All available information regarding the M-NCPPC's consultant's modeling has been provided to Pulte and their consultants.	Informational

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			the presented results. (Soltesz, Geosyntec)		
E-53	Modeling Results		The hydrologic modeling done by the M-NCPPC consultants does not support staff recommendations. (Geosyntec)	No level of hydrologic modeling can determine the effect of development on stream biological health. Because the principal environmental concern in TMC is its high-quality stream biology and its status as one of the few reference streams in the County, the question as to how much TMC would decline in stream biological health in response to development cannot be determined by hydrologic modeling. Because of this, staff used a combination of different approaches including hydrologic modeling, natural resources analyses, and findings from the scientific literature, to assess the relative degree of risk to stream biological health, and to make recommendations accordingly. Differences between the planning-level analysis done by staff consultants, and the much more detailed modeling done for the Pulte property are to be expected. For planning purposes it cannot be assumed that any one particular stormwater concept will be implemented. In addition, that information is not available for all properties.	Informational
E-54	Modeling Results		Infiltration rates used do not represent actual soil	The M-NCPPC consultant's model used a consistent method across the TMC	Informational

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			conditions found at the proposed subject property. (Geosyntec)	watershed, applying infiltration rates that are consistent with the soil types on the properties, along with considerations for infiltration alterations typical of post-construction soil conditions. This was the approach that was selected for planning-scale modeling to estimate impacts from all the proposed development scenarios, whereas site-specific details would normally be evaluated for specific developments during the development review process.	
E-55	Modeling Results		The development scenarios as modeled are not consistent with local and state stormwater design requirements. (Geosyntec)	The current Micro Bioretention design used by Montgomery County does meet or exceed the minimum requirements of MDE as an ESD practice. All the assumptions used for ESD in the modeling were coordinated with the Department of Permitting Services and approximate, as much as possible, County stormwater regulations.	Informational
E-56	Modeling Results		Model configurations do not accurately represent the proposed stormwater practices.	The approach used in this effort utilizes generally accepted practices and assumptions, including conservative criteria about BMP routing that are typically assumed by DPS for comparable analyses. Basic assumptions were reviewed with Planning staff, DPS and DEP.	Informational
E-57	Water Quality and Biological Health of Reference Streams		Subwatershed 206 is not a reference stream and should not be considered	Subwatershed 206 is not, by itself, a separate reference stream, but is an integral part of the overall TMC reference	Informational

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			part of a "last best stream". (Peterson)	stream and watershed. Changes in subwatershed 206, and elsewhere in TMC, could lower the stream biological health of TMC, and increase the risk of eliminating TMC as a County reference stream. As a result, subwatershed 206 is considered to be an important part of any assessment of the TMC watershed. (See the response to E-4.)	
E-58	Recommendation Consistency		Staff recommends a major downzoning for the Pulte property that is inconsistent with recommendations elsewhere in the draft plan and is inequitable compared with the other TMC properties on the east side of I-270. (Robert Harris)	Differences in staff recommendations in different parts of TMC depend on a number of factors and considerations including different community building goals, and differences in potential impacts to natural resources and stream biological health. On the west side of I-270, recommended lower levels of development are based on the unusually high stream biological quality of subwatershed 110, and the locations of the outfalls of both subwatersheds 110 and 111 just upstream of the TMC reference station. A recent interagency workshop to begin to develop a Biological Condition Gradient (BCG) for the County found that subwatershed 110 is close to the highest quality level to be expected anywhere in the County, and hence is itself a heretofore unrecognized candidate for a reference stream. These are yet more reasons, unknown in 1994, for recommending	Concur with staff

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				changes to the existing master plan.	
Transportation			Current Roads cannot support existing traffic. (Dick Abbott)	Many people traveling by auto in Clarksburg may occasionally experience traffic congestion as part of their trip. However, results derived from the application of the County's area-wide test (currently TPAR, and formerly PAMR) indicate that existing evening peak hour roadway traffic conditions in the Clarksburg policy area are adequate.	Concur with staff that there are significant gaps in the existing network
Transportation			Opposes outlet malls, prior infrastructure is not complete, status of Little Seneca Hwy completion, Foreman Blvd traffic is dangerous to community, volume of traffic on residential streets (Timber Creek Lane and Foreman Blvd.) Uncontrolled speeding (Timber Creek Lane and Foreman Blvd.) 25 mph posted. (Kevin Hutto)	The transportation-related infrastructure needs of new development in Clarksburg will be addressed by the application of the County's APFO (specifically TPAR and LATR). Residents may petition MCDOT to consider traffic calming and enforcement measures in order to address traffic problems on local/residential streets (e.g., "cut through" and/or speeding traffic).	Informational
Transportation			Additional traffic congestion on 355 and secondary roads at the 270 interchange. (Andrew Hencke)	Results derived from the Clarksburg Local Area Model (LAM) traffic analysis indicate that key intersections in the area (including the interchange ramp terminals at I-270 and Clarksburg Road) will perform adequately with improvements that will be implemented as development is approved. The MD 355 Bypass will relieve traffic	Informational

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				congestion along MD 355 through the Town Center area.	
Transpo rtation			Intersection of Clarksburg Road and West Old Baltimore Road lines of sight are seriously limited. Traffic circle should be built now. (Christopher Arndt)	Residents may petition MDSHA and MCDOT to consider geometric improvements at this intersection.	Informational
Land Use and Zoning/ East of I-270Land Use	Town Center	Pages 32-34	No development should occur until the promised Town Center—including library and fire station—is delivered; an outlet mall in this portion of Clarksburg is inappropriate (Livable Clarksburg Coalition and others)Revisit the I-270 technological corridor.	Amendment recommendations reflect recognition of Town Center's importance to Clarksburg. Town Center development proposals are likely later this year for development at a scale somewhat larger than other two village centers. Amendment recommendations for historic district and Miles-Coppola properties designed to complement Town Center development; Amendment does not endorse an outlet mall, but recommends specialty retail, employment uses and residential uses in one land use option. Other option shifts Miles-Coppola focus to residential uses, providing more households to support Town Center. Clarksburg's fire station and library are in the county's Capital Improvement Program, but do not appear to be high priorities given budget constraints. It may be appropriate to add language to the Plan emphasizing the importance of timely	Concur with staff; plan to add language stating that mixed use development is appropriate along I-270 and that civic building should proceed in a timely fashion

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				construction of these facilities to Clarksburg's successful development.	
Land Use and Zoning/ East of I-270	Town Center	Pages 32-34	Egan-Mattlyn property has previously approved NRI/FSD and Forest Conservation Plan that satisfy buffer requirements. Complete stream restoration on the site should not be required. Requirement to prepare a conservation management program is onerous. (Vaias)	The NRI/FSD and Forest Conservation Plan for this property are associated with its current special exception use. Residential development that implements the Limited Amendment land use and zoning recommendation for the property constitute a new use that implements a new land use recommendation. As such, new submissions for a natural resource inventory and a forest conservation plan are required and must meet recommendations and guidelines approved with the Limited Amendment. Planning staff will evaluate streams on the property to determine if structural remedies, in addition to required buffer planting, are necessary. Plan's intent was to seek conservation management programs on properties west of I 270. On this property, natural vegetation can be protected through forest conservation and natural stream bank restoration. A detailed conservation management plan with permanent maintenance may be unnecessary. **Staff proposes to delete this language requiring a conservation management**	Informational

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				plan from this section.	
Land Use and Zoning/ East of I-270	Town Center	Pages 32-34	Support for outlet malls. (Numerous individuals)	Amendment does not address proposals for Cabin Branch, which is outside study area. It does not endorse outlet mall on Miles-Coppola properties, but recommends some specialty retail in one land use option.	Concur with staff
Land Use and Zoning/ East of I-270	Employment	Pages 32-34	Retain I-270 technology corridor employment concept.	The 1994 Plan recommends eight to ten million square feet of employment space, much of which is in the Transit Corridor District straddling I-270. At the same time, significant amounts of space in Germantown and the Life Sciences Center are proposed for research, development, biotechnology and other activities. In addition, trends in office development suggest that businesses are requiring less physical space in office buildings. Reevaluating the emphasis on employment could enable a broader mix of non-residential uses in Clarksburg, reflecting the evolution of the market for employment.	Concur with staff; Plan will add appropriate language as noted.
Land Use and Zoning/ East of I-270	Town Center	Pages 32-34	CR Zone appropriate for Miles-Coppola properties. Option One (mixed use retail/residential) is preferred option; increase in density to 0.75 FAR and increase in height to 100 feet will enable optional method development with public benefits.	The Public Hearing Draft identifies construction of the MD 355 bypass as a major public facility, a public benefit under the CR optional method. If optional method development cannot occur at 0.5 FAR, it may be appropriate to increase density to 0.75 FAR to encourage provision of this important benefit. The appropriateness of added	Option one is preferred at 0.75 overall density; building height remains 75 feet

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			(Peterson Companies)	height can be evaluated in detail during the worksessions.	
Land Use and Zoning/ East of I 270	Historic District	Pages 32-34	CRT Zone with overall density of 0.5 FAR more appropriate for historic district, which is a "focal point" for Clarksburg. (Cobb, Buffingtons)	The 1994 Plan's concept sketch (p27) shows Clarksburg's civic focus to be north of the historic district, with Redgrave Place functioning as a "spine" between the proposed transit station and the civic center. The Plan also designates an area east of the historic district as a retail center, with 150,000 square feet of retail space. It proposes 70,000 square feet to 105,000 square feet of space for the historic district and describes this space as infill. Design guidelines for the historic district focus on renovation of existing buildings for residential and light commercial activities. Potential development at 0.25 FAR across the entire historic district significantly exceeds the 105,000 square feet envisioned in the 1994 Plan. If those properties now in commercial use developed to 0.25 FAR, more than 210,000 square feet of space would be available for residential or commercial development. When privately owned vacant properties are included, the potential development total rises to more than 260,000 square feet. It is likely that the Plan's design guidelines and the need to create development that is	Concur with staff; overall density of 0.25 in CRN Zone is appropriate

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				compatible with the historic district would reduce this total, and it is desirable that some space be devoted to additional housing in the historic district. Nonetheless, the recommended FAR appears, across the whole of the historic district, to provide an adequate level of development to meet the objectives of the 1994 Plan.	
Land Use and Zoning/ East of I 270	Historic District	Pages 32-34	Extension of public water and sewer service to historic district is critical. (Darby, Cobb, Buffingtons)	It is appropriate to add language on the importance of timely extension of water and sewer service in the historic district.	Concur with staff; language will be added to Implementation chapter
Land Use and Zoning/ East of I 270	Historic District	Pages 32-34	Retain C-1 Zone for Gardner House. (Cobb)	The C-1 Zone is not proposed for inclusion in the county's revised Zoning Ordinance. It would therefore be included in a broad overall map amendment that would follow approval of the new Ordinance. This Limited Amendment provides an opportunity for a comprehensive evaluation of land uses in the Historic District in the context of the Ordinance's imminent revision. The CRN Zone allows the 1994 Plan goals for the district to be realized. Gardner House should be evaluated in the larger context of the entire Historic District.	Concur with staff; retain CRN Zone
Land Use and Zoning/ West of	Pulte-King properties	Pages 34-37	Developing properties at 1994 recommended levels is environmentally	Limited Amendment significantly reduces densities on properties and recommends zone that requires up to 85 percent of property be preserved as	RNC Zone preferred at density of 1 unit per acre, with 65 percent rural

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I-270			damaging overdevelopment (STMCC, Livable Clarksburg Coalition and others)	contiguous undeveloped open space. Recommendation preserves undeveloped areas while adhering to 1994 Plan objectives for single-family housing, preservation through use of TDRs and creation of transition from Town Center to Ag Reserve.	open space
Land Use and Zoning/ West of I-270	Pulte-King properties	Pages 34-37	Proposed downzoning conflicts with objectives of 1994 Plan (Harris et al)	Development under RNC Zone would consist almost entirely of single-family homes, as recommended in the 1994 Plan to meet County housing policy and contribute to a transition from Town Center to Ag Reserve. Mixing residential development with open space enhances the transition. It would support agricultural preservation by absorbing TDRs. Support for Town Center is more appropriately located east of I-270 to enhance walkability closer to retail/office uses there.	RNC designation preserves rural open space; shift in unit types contributes to resource preservation
Land Use and Zoning/ West of I-270 Parks	Pulte-King properties	Pages 34-37 Pages 39-40	Area should be added to Ag Reserve or protected through Legacy Open Space (STMCC and others)	Adding this area to the Ag Reserve would eliminate its ability to contribute to preservation by absorbing TDRs. It would not meet 1994 Plan goals for creation of a single-family housing resource and a transition from the Town Center. It would add to the inventory of TDRs for transfer, increasing the potential for an imbalance between sending and receiving areas. Plan proposes significant	Do not add to Ag Reserve, Protect resources through Legacy Open Space, eliminate TDR requirement

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				designation of land as Legacy Open Space Natural Resource Site for protection in the most important natural areas in the watershed while still allowing for appropriate development. The forest interior area west of I-270 is one of the 20 largest in the County, and is the largest one not protected through public ownership already. A variety of preservation tools will be used to preserve the Natural Resource, including dedication of land to Parks outside the development areas on the Pulte-King properties.	
Land Use and Zoning/ West of I-270 Parks	Pulte-King properties	Page 144, Pages 34-37	Confiscatory nature of park proposal. Full density should be retained to maximize use of TDRs (Weitzer)	The large majority of the parkland proposed in the Plan was previously identified in the 1994 master plan as "private conservation areas" that, if requested by the Parks Department would be dedicated as parkland at time of development. Within the Pulte-King properties, the 1994 plan identifies 322 acres of "conservation areas" and the Limited Amendment proposes 353 acres of Legacy Open Space, an increase of only 31 acres or 6% of the total Pulte-King properties. Further, the proposed Legacy Open Space Natural Resource recommendation was created to support preservation and creation of a conservation park in this high quality watershed, while not impacting the zoning and development footprint	Rural open space requirements of RNC zoning recommenda-tion will require that Neighborhood parkland will have to either be provided within the LOS area or purchased from the property owners.

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				proposed in other sections of the Limited Amendment. The *Legacy Open Space Functional Master Plan* (M-NCPPC, 2001) specifically states that a Legacy Open Space designation does not alter zoning or other land use recommendations (p.13). In this case, the LOS designation was created to complement the land use and zoning recommendations for the Limited Amendment area. The Limited Amendment's land use recommendations reflect the need to balance the important goals of natural resource preservation and agricultural preservation. While the densities proposed are less than those recommended in the 1994 plan, one reason the draft proposes the RNC Zone is its TDR component, which will continue to enable the land to absorb some TDRs and contribute to farmland preservation.	
Staging	1994 Plan Staging and Implementation	1994 Plan Pages 186-199	No stage 4 activity until development in Stages 1-3 is "complete"	Stage 4 triggers combined requirements for specific levels of development in the Town Center and Newcut Road neighborhoods with environmental monitoring in the Ten Mile Creek and Little Seneca watersheds and evaluation of best management practices in the Town Center and Newcut Road neighborhoods. In 2010, the County Council concluded	No additional staging recommended

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				that the Stage 4 triggers had been met. It decided to request preparation of this Limited Amendment, a Stage 4 option provided by the 1994 Plan. Achieving staging triggers should not be confused with "completing" build-out of development allowed in a given stage.	

The Master Plan Amendment allows different levels of impervious cover on different properties within the same watershed. What was the basis of the Planning Board's decision to have varying levels of imperviousness?

All land use plans are based on a rational organization of land uses to promote appropriate densities and uses that achieve a vision for a community. This inevitably results in more intense uses and higher densities on properties that are located closer to the center (or centers) of a community. Such an approach allows for a concentration of uses near a downtown or commercial center and community amenities.

Evaluation of appropriate land uses for the Ten Mile Creek watershed rests on the idea that the "vision" put forth in the 1994 Master Plan remains valid. That vision is based on the interplay among the ten policies articulated in the Plan's Vision for the Future. The thrust of those policies is the creation of a clearly defined community that would include land uses ranging from agriculture in the western parts of Clarksburg, to employment areas along the Corridor Cities Transitway.

Clarksburg is evolving, based on the vision and the ten policies, from a rural crossroads into a vibrant corridor town. Whole communities, like Arora Hills, Clarksburg Village and Clarksburg Town Center, have been planned, designed, built and occupied. More than 6,500 housing units have been built; another 4,000 have been approved. A significant new community is underway on the west side of I 270 in Cabin Branch. Stores, restaurants and other services are available to Clarksburg Village residents, and the retail portion of the Town Center is in the planning stages. While challenges remain, particularly in providing employment and transit opportunities, Clarksburg is emerging as the defined community outlined in 1994.

The amount of existing imperviousness in the subwatersheds and the existing stream biological health conditions of the subwatersheds were also considered. All of the subwatersheds with proposed development under Stage 4 of the 1994 Plan contain headwater streams.

The 1994 Plan recognized that areas under consideration for non-residential development lay in a part of the Ten Mile Creek watershed that is east of I-270 and considered part of the Town Center District. The Plan notes that: "This environmental concern was considered during the Plan process and less constrained locations for the Town Center were evaluated. However, the advantages of locating the Town Center near the historic district in terms of fostering community identity and reinforcing the traditional center of Clarksburg are equally important Plan objectives. To help address environmental concerns, the Plan shows reduced densities for parcels closest to the headwaters of Ten Mile Creek." (p 42)

The subwatershed within the Town Center District (LSTM 206) is the most upstream of these headwater subwatersheds. It has both the highest level of existing imperviousness (16.6%) and the lowest (Fair) biological stream health condition. Even if no development was permitted on the properties in this subwatershed, it is unlikely that stream conditions would improve given the current levels of imperviousness and the existing and proposed transportation infrastructure. Projected imperviousness levels would likely cause additional impacts to water quality, but it would still likely remain in a Fair condition rating.

Land use recommendations in the current Planning Board Draft limited amendment for the Ten Mile Creek watershed reflect acceptance of the 1994 vision and the recommended use of imperviousness caps represent a further effort to reduce environmental impacts, while furthering Plan goals. East of I

270, the recommended limits recognize the continued importance of "fostering community identity and reinforcing the traditional center of Clarksburg....". Achieving a balance among community building and environmental goals meant that setting an imperviousness limit was an appropriate response to increased awareness of environmental sensitivity, but that limit had to be high enough to encourage development that could meet the important community building objective. Because the proposed zoning could result in a wide range of impervious percentages, the Board felt that an imperviousness limit was a way to assure a limit on the potential environmental impact.

West of I 270, the limits recognize the generally high water quality of the subwatersheds and the generally lower intensity of development recommended for the area in the 1994 plan. The 1994 plan also recommended increasing protection by including substantial areas beyond the stream buffers as "private conservation area." The plan clearly states that these areas should remain undeveloped and be afforested. The subwatersheds west of I 270 have much lower levels of existing imperviousness and much higher stream biological health conditions compared with LSTM 206. One of these subwatersheds was recently identified as having almost the highest stream health that can be expected in the County. Two of the three subwatersheds on the Pulte and King properties flow into Ten Mile Creek just upstream of the monitoring station where the County has been measuring this as a reference stream (a high-quality benchmark against which other streams in the county are judged. For these reasons, the Board recommended a lower imperviousness level and cap for the developable properties within these subwatersheds. The Board determined that a 10 percent imperviousness limit on the Pulte and King properties could sufficiently protect water quality and stream biological health in particularly sensitive subwatersheds, while allowing single-family residential development in keeping with the 1994 Plan's objective, creating a low density housing resource in this part of Clarksburg. Much stricter limits were recommended on county properties to provide further protection for the creek and important forest interior habitat.

Has the Planning Board required different imperviousness levels for different properties within the same watershed in the past?

The Upper Rock Creek Environmental Overlay Zone effectively requires different levels of imperviousness in the Upper Rock Creek Special Protection Area. Because the zone's regulations apply specifically to development served by community sewer service, they result in an eight percent limit on development using community sewers and no limit on development using septic systems. Similarly, the zone's exemption for development in industrial or commercial zones results in no limit on imperviousness for such projects.

In addition, the Functional Master Plan for the Patuxent River Watershed, and more recently in the Burtonsville Crossroads Master Plan, required different imperviousness levels for different areas. In both cases, the lower imperviousness levels for the designated areas were considered important in limiting future development-related degradation to important natural resources.

ADDENDUM

PHED/T&E Committees #1
January 13, 2014

From: Boucher, Kathleen
Sent: Friday, January 10, 2014 4:31 PM
To: Levchenko, Keith
Cc: Michaelson, Marlene; (Mary.Dolan@mncppc-mc.org); Hoyt, Bob; Lake, Dave; Edwards, Stan; Shofar, Steven; Curtis, Meosotis; Van Ness, Keith; Gary Gumm (ggumm@wsscwater.com)
Subject: Ten Mile Creek - DEP Response to Council Staff and CM Berliner Questions
Importance: High

Dear Keith,

In your email below you requested that the Planning Board, WSSC and DEP respond to a list of questions relating to the Little Seneca Lake reservoir and potential impact on drinking water of development in the Ten Mile Creek watershed. You also referenced a letter from Councilmember Berliner to Planning Board Chair Françoise Carrier, which outlined a number of questions regarding the Planning Board's recommendation for the Limited Master Plan Amendment and asked WSSC and DEP to respond to those questions as well.

In order to avoid duplication and confusion regarding the responses from three separate agencies, we have reviewed the attached responses provided by the Planning Board and WSSC and have developed a response that outlines areas of concurrence and provides additional input from DEP where appropriate.

Please let me know if you have any further questions after you review this response.

Kathleen Boucher
Chief Operating Officer
Department of Environmental Protection
240-777-7786

I. COUNCIL STAFF QUESTIONS

Questions 1, 2, 3, 4, 6, 7, 8, 9, and 11.

DEP Response:

DEP concurs with the responses provided by WSSC.

Question 5

What is the current estimated imperviousness of this acreage?

DEP Response:

Based on GIS data maintained by DEP to implement the Water Quality Protection Charge, the total acreage in the drainage area for Little Seneca Lake is 13,544 acres and approximately 13% of this area is impervious surface.

Question 10

To what extent would the scale of development being debated in the Stage 4 Limited Master Plan Amendment have a significant impact on the Little Seneca Lake Reservoir or drinking water quality from the Potomac River in general? To what extent would the alternative levels of development that have been suggested (ranging from no additional development to the Planning Board recommendations to the increased levels of development requested by property owners) result in differences in the quality of WSSC drinking water?

DEP Response:

In response to Question 11, WSCC stated the following: "WSSC has seen modeled data for development in the Ten Mile Creek watershed that suggests that adverse water quality impacts in that sub-watershed would probably not be significantly changed from current conditions. Changes in Ten Mile Creek, if they occur as modeled, are not likely to be substantially distinguishable from the cumulative water quality condition in the entire Lake, which (as noted in A.7) is currently not impaired."

DEP has reviewed the same modeling data referenced by WSSC in its response and agrees, based on this data, that it is unlikely that the "incremental" development proposed for the Ten Mile Creek watershed will significantly impact the water quality of Little Seneca Lake. DEP notes, however, that this is a different question than the question of how development scenarios would impact water quality in the Ten Mile Creek tributaries and main stem. DEP also notes that the modeling data relating to development scenarios in the Ten Mile Creek watershed are only one component of the data that would be necessary to evaluate a different but related issue – i.e., how do the cumulative impacts of development throughout the entire Little Seneca Lake watershed impact the reservoir?

Question 12

Please describe the factors that underlie your conclusions on questions #10 and #11. For instance, could a particular level of increased imperviousness in the Ten Mile Creek watershed tip the balance in the Little Seneca Lake catchment area?

DEP Response:

WSSC's response to Questions 10 and 11 indicate that they are based on WSSC's analysis of the environmental models evaluated by the Planning Board regarding the impact of projected increases in nitrogen, phosphorous and sediment loads on the Little Seneca Lake resulting from different development scenarios. DEP's responses are based on the same models. The available scientific data does not allow DEP to identify a specific level of imperviousness that would "tip the balance" of water quality in Little Seneca Lake – viewed from the perspective of whether the changes in water quality would impact the reservoir's intended uses. In general, the more imperviousness the greater the potential impact to water quality. Again, the question of how development activities impact the reservoir is a different question than the question of how development activities impact Ten Mile Creek's tributaries and main stem.

Question 13

If specific levels of development in the Ten Mile Creek area would result in significant impacts on water quality, what options should the County consider to reduce or mitigate these impacts?

DEP Response:

As mentioned above in our responses to Questions 10 and 11, the question of how development impacts water quality in the reservoir is a different question than the question of how development impacts the water quality of Ten Mile Creek's tributaries and main stem. We concur with WSSC's conclusion that the incremental impacts of the various development scenarios modeled by the Planning Board are not likely to adversely impact the water quality of Little Seneca Lake. However, the different development scenarios do pose a risk of impacting water quality in Ten Mile Creek's tributaries and main stem. In addition to minimizing the amount of impervious surfaces, there are a number of other options that could help to reduce or mitigate impacts on water quality, including:

- All of the recommendations included on pages 19-21 of the Planning Board's report on its recommended Limited Master Plan Amendment.

- Establishing conservation management plans in all areas located outside the limits of disturbance in the Ten Mile Creek watershed.

- In addition to the Planning Board's general recommendation to require wide buffers around streams and to maintain natural topography and vegetation where possible (particularly forests in headwater areas), overall performance of Environmental Site Design (ESD) could be improved by promoting a more even flow from bioretention facilities. In this respect, riparian buffer areas should be treated as a critical component of stormwater management. Every effort should be made to promote more even distribution of flow from ESD facilities along the entire range of forested or meadow buffer areas.

- The new 20-acre limit on grading established by State law may provide additional mitigation during construction but State law allows grading of additional areas to proceed once 50% of the 20 acres is "stabilized." Optimizing the success of improved stormwater control measures needs to focus on source reduction rather than best management practices (BMPs) for treatment. Source reduction is by far the best BMP.

- Soil decompaction needs to be incorporated as practical to address effects due to both construction and prior agriculture or other activity, but without disturbing vegetation to be saved on soils that might have had prior compaction effects. DEP's experience suggests there may be cases where collecting, stockpiling and reusing local topsoil generates more sediment than it saves. It may be better to compost amend whatever soil is left on the ground to start topsoil generation, and minimize the amount of grubbing early in a project to leave whatever root mat and organic content was in place for as long as possible.

Question 14

Do you believe additional research or analysis is needed to sufficiently answer any of Questions #10 - #13?

DEP Response:

DEP's responses to Questions 10-13 are based on its review of available modeling data regarding the incremental impact of development scenarios in the Ten Mile Creek watershed on Little Seneca Lake. Former Councilmember

Scott Fosler, former Planning Board Chair Royce Hansen, former DEP Director John Menke and numerous other environmental and water resource advocates have called for further review and analysis of those impacts before Council takes action on the Planning Board's recommended Limited Master Plan Amendment. More specifically, they have called for a study that evaluates the cumulative impacts of all existing and proposed development in the entire Little Seneca Lake drainage area before action on the Limited Master Plan Amendment.

These advocates note that the headwaters of the Little Seneca Lake reservoir and the reservoir itself are located in three different master plan areas within the County -- Germantown, Clarksburg-Hyattstown and Boyds. As a result, they stress that the impacts of development in all three master plan areas on the reservoir have never been fully evaluated as a part of the County's master plan process. They argue that, before further development is approved, an appropriate study should be conducted to assess the cumulative impacts of development – both existing and proposed – within the Little Seneca Lake drainage area. They cite best practices for protecting "source water" that are being implemented throughout the country and argue that this kind of study is needed in order to identify any steps that must be taken by the County over the long-term to protect the reservoir's water quality and its intended use as source water for the region during drought situations.

DEP agrees that these stakeholders have identified a very important policy issue but is uncertain at this point in time as to the appropriate scope of such a study or whether the study should be conducted prior to approval of the Limited Master Plan Amendment. DEP will continue to evaluate this issue as the PHED Committee worksessions move forward. We note that the advocates have referenced a variety of best practices being used by water utilities across the country to protect source water and it would be helpful to learn more from WSSC about its long-term plans for protection of the reservoir in general and, more specifically, whether WSSC believes that a study of the cumulative impacts of existing and proposed development on the reservoir is appropriate at this time.

II. LETTER FROM COUNCILMEMBER BERLINER

DEP agrees with all of the Planning Board's responses to the questions posed by Councilmember Berliner and also has the following additional comments on Questions 1 and 2.

Question 1

Why is Ten Mile Creek important to our county and/or to the region?

DEP Response:

DEP agrees with the Planning Board's response but also has some additional comments regarding the importance of Ten Mile Creek.

Ten Mile Creek is a "headwater" system in which the majority of the tributary streams are small and spring fed. Abundant springs and seeps supply the cold and clean groundwater necessary to maintain high aquatic diversity. The fracture fault geology that is unique to this part of the County has influenced the stable shape of the stream channels, how the groundwater flows through the underlying layers of rock and how the springs and seeps are maintained. Land use activities that impact any of these factors can negatively impact the high aquatic diversity that they support.

Ten Mile Creek is located within an area of thin, rocky soils that is geologically different than the areas that surround other streams in most parts of the County. Relative to most streams in the County, stream beds in the Ten Mile Creek system contain smaller amounts of silt or clay and larger numbers of flat thin rocks of greenstone and Ijamsville schist. The surface area on these flat thin rocks and the absence of large amounts of silt or clay make it an ideal environment to support diverse benthic (living on the bottom) macroinvertebrate communities. Streambeds with more silt or clay or other types of rock material are less friendly habitats for the benthic organisms that are a key indicator of a healthy

stream and make it more difficult for them to thrive. Land use activities that increase the amount of silt or clay in the stream beds can negatively impact the ability of benthic organisms to thrive.

Question 2

Ten Mile Creek has been referred to as a "reference" stream". What is a "reference stream" and what qualifies a stream for this designation?

DEP Response:

A reference stream is a stream that has the best natural habitat within a certain geographic range. In this case, Ten Mile Creek is a reference stream within Montgomery County for its Piedmont Region. Reference streams are identified as having "least impaired" habitats based on a specific set of factors including low imperviousness and high vegetated cover in their drainage areas and high stream bank and channel stability. These streams potentially support "least disturbed" aquatic communities and are used as a comparative "reference" for assessing the integrity of more impaired County streams. The reference stream program that was developed for Montgomery County is based on the framework outlined in the *Technical Guide for Developing an Index of Biotic Integrity* (George Gibson, 1996).

From: Levchenko, Keith
Sent: Thursday, December 19, 2013 11:43 AM
To: Lake, Dave; Dolan, Mary; 'Gumm, Gary'
Cc: Michaelson, Marlene; Faden, Michael
Subject: Ten Mile Creek questions regarding drinking water issues

To: Dave Lake (DEP)
Gary Gumm (WSSC)
Mary Dolan (Planning Board staff)

One issue that Council Staff is reviewing as part of the Stage 4 Limited Master Plan before the Council is the potential impact on drinking water quality from development in the Ten Mile Creek Watershed since the watershed drains into the Little Seneca Lake Reservoir.

An opinion piece in The Washington Post from November 15 (see below) from several former County officials argues that development should be drastically reduced and/or further studied to better understand the potential impacts on the Little Seneca Lake Reservoir before opening up the Stage 4 area for development. These concerns were echoed by a number of speakers at the Council's public hearings on December 3 and 5.

Below is a list of questions that I think would help Council Staff assess this issue. Councilmembers have asked for written responses from WSSC and DEP and would welcome any comments from the Planning Board staff as well. Council Staff would like to receive your responses by January 3 so that the information can be incorporated into the Council Staff packet for the first committee worksession taking place on January 13.

1. Please provide a brief history of the creation of Little Seneca Lake, including the reasons the lake was built, its proposed function, and the agreements that guide water releases from the lake.

2. Please explain the specific circumstances under which reservoir water is used, when this has happened, and exactly what happens during these events.

3. Was the lake ever considered as a direct emergency water source (i.e. direct withdrawals from the lake) as opposed to releases from the dam to allow increased flow into the Potomac River? If so, please describe how this direct use would work. How would the water be treated? How would it be delivered to regional customers? Given the capacity of the

lake (4.0 billion useable gallons of water according to what I've read), how long would that water supply be able to serve the WSSD and the region?

4. How much acreage is within the Little Seneca Lake drainage area (i.e. drains directly into the lake or from water sources that drain into the lake)?

5. What is the current estimated imperviousness of this acreage?

6. What proportion of the total acreage that drains into Little Seneca Lake is from the Ten Mile Creek Watershed?

7. What is the condition of the reservoir right now? How does your agency evaluate the condition of the reservoir? How does development in the watershed affect the quality of the reservoir itself and the quality of the water in the reservoir? What are your agency's major concerns (if any) with regard to the water quality of the reservoir? Sediment? Pollutants?

8. How far does water released from the Lake flow to reach the Potomac River? How far upstream from the Potomac Water Filtration Plant does the released water enter the Potomac River? At its greatest potential release during a severe drought, what proportion of Potomac River water at the Potomac Water Filtration Plant intake would be from the reservoir?

9. Given Queston #8, does the released water make up a sufficient portion of the Potomac River water at a given time to have a significant impact on drinking water quality? How much does the water quality of the Lake affect Potomac River water quality and drinking water quality at the Potomac Water Filtration Plant?

10. To what extent would the scale of development being debated in the Stage 4 Limited Master Plan Amendment have a significant impact on the Little Seneca Lake Reservoir or drinking water quality from the Potomac River in general? To what extent would the alternative levels of development that have been suggested (ranging from no additional development to the Planning Board recommendations to the increased levels of development requested by property owners) result in differences in the quality of WSSC drinking water?

11. Comparisons to Watts Branch's impact on Potomac River water quality have been made, with some contending that WSSC is considering a mid-river intake at least partly because of reduced water quality closer to shore as a result of the degradation of Watts Branch's water resulting from upstream development. To what extent would increased development in the Ten Mile Creek watershed raise similar questions?

12. Please describe the factors that underlie your conclusions on questions #10 and #11. For instance, could a particular level of increased imperviousness in the Ten Mile Creek watershed tip the balance in the Little Seneca Lake catchment area?

13. If specific levels of development in the Ten Mile Creek area would result in significant impacts on water quality, what options should the County consider to reduce or mitigate these impacts?

14. Do you believe additional research or analysis is needed to sufficiently answer any of Questions #10 - #13?

Also, On December 11, T&E Committee Chairman Berliner sent a memo (attached) which included a list of questions to Planning Board Chair Carrier. We would like DEP and WSSC to respond in writing by January 3 to these questions as well.

Thanks,

Keith Levchenko
Senior Legislative Analyst
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Montgomery County rolls the dice with the region's water system

By John Menke, Scott Fosler and Royce Hanson, Published: November 15

Anyone who lives in the D.C. region and relies on clean drinking water to live — in other words, everyone who lives in the D.C. region — needs to be aware of a debate that's about to come to a head in Montgomery County.

A proposal to amend the land-use plan for the Clarksburg area, in the northern part of the county, is set to be taken up by the county council in December. This proposal may endanger the integrity of the water system for metropolitan Washington by permitting millions of square feet of commercial and office development and the construction of hundreds of residences alongside the headwaters of Ten Mile Creek, the last undeveloped tributary of Little Seneca Reservoir.

As former Montgomery County officials, each of us was involved in the creation of the reservoir and its designation as a key component of the water system for metropolitan Washington. It supplanted massive and ill-conceived alternatives, including a proposal to place some 16 dams on the Potomac River that would have inundated most of the C&O Canal and destroyed the character of the river basin. Regional leaders discovered that in the event of a drought, with an appropriate regional system of interconnected local water supplies, Little Seneca Reservoir alone could sufficiently augment the flow of the Potomac until water released from another, larger reservoir reached intakes in the river.

This new regional water supply system, with Little Seneca Reservoir at its core, was formalized in the 1982 Water Supply Coordination Agreement, signed by the region's major water utilities in Maryland, Virginia and the District and the Interstate Commission on the Potomac River Basin.

But the integrity of that system is now threatened. The development blueprint approved by the county Planning Board in October concedes that development of any scale would degrade Ten Mile Creek; the only questions are by how much and what effect would this have on the reservoir. We don't know the answers to these questions because no comprehensive study has been carried out. Notably, the Planning Board's professional staff recommended a level of development well below what the board approved — and even that lower intensity involved significant risk. The board then increased the level of development recommended by its staff by 50 percent east of Interstate 270 and 300 percent west of the highway. No justification for this level of damage is offered in the plan.

To approve such expanded development without a careful, professional and independent analysis of its impact on this critical water resource would constitute an abandonment of the stewardship responsibilities that the county exercises for the 4.3 million people whose water is drawn from the Potomac.

We have walked in the shoes of planners and council members and understand the difficulty of making decisions that are certain to disappoint some interested parties. We share responsibility for the present problem because 30 years ago, when we proposed and acquired land for the reservoir and helped to negotiate the agreements for its role in the regional system, we should have taken stronger action to ensure its protection. But we did not anticipate that future planning boards and county councils would consider massive development along the headwaters of the reservoir without first carefully studying the damage it could do to the region's water supply.

We believe the responsible course for the Montgomery County Council to take at this point is to drastically reduce the proposed density and impervious-surface limits in the Clarksburg amendments. Better yet, reject the plan and remand it to the Planning Board for reconsideration after a thorough, independent analysis.

John Menke was a member of the Montgomery County Council from 1974 to 1978 and later served as director of the county Department of Environmental Protection. Scott Fosler served on the county council from 1978 to 1986. Royce Hanson was chairman of the Montgomery County Planning Board from 1972 to 1981 and 2006 to 2010.