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February 1, 2012

RE: 2011 Chesapeake Bay TMDL Phase 2 WIP Requested Information

Introduction
This is a response to the request by the VA Department of Conservation and Recreation (DCR) for information necessary to develop the Phase 2 Watershed Implementation Plan. City staff is providing this data with descriptions of why it is incomplete and needs to be refined. City staff also realizes that DCR is responding to a mandate from EPA and is willing to continue working with DCR in these efforts.

The City of Waynesboro Public Works Department (PWD) is charged with the oversight of several activities that ultimately affect water quality at the local and Chesapeake Bay levels. The Engineering Division of the PWD was charged with providing a response to the fall 2011 request by DCR to provide updated information.

During this process the Engineering Division has identified several questions concerning the information being used to develop the City's load allocation that prevent a formal response to the DCR request in the desired format. It is also important to note that the financial implications of the 2017 and 2025 Proposed BMP's provided through the EPA Bay Model v5.3.2 make the desired response format impossible to utilize given limited municipal financial resources and the current and projected economic climate.

The City of Waynesboro Public Works Department manages the wastewater and stormwater assets that are affected by the Chesapeake Bay TMDL. Within the PWD the Engineering Division has the core functions of project management for municipal projects and technical support for PW Operations crews. The Engineering Division is heavily involved in several urban water quality related activities as well including:

- Operating a DCR approved ESC program
- SWM plan review and inspection of development projects
- Interpretation and implementation of recently updated SWM regulations
- Development of the South River TMDL implementation plan
- Actively pursuing implementation funds for water quality projects.

The Engineering Division has a long history of using grant funds to improve water quality on the South River including:

- A 1998 streambank stabilization project in Ridgeview Park
- A 2007 riparian buffer planting in the South River floodplain
- Construction of a SWM BMP in Ridgeview Park using 2007 WQIA funds
- Use of 2011 NFWF small watershed grant funds on rehabilitation of a 2.5 acre SWM basin that was identified as a high priority project in the South River TMDL implementation plan

The Public Works Department also oversaw a Wastewater Treatment Plant upgrade in excess of $40M that was completed in 2011, and the PWD provides oversight of over $1M per year of contracts and in-house projects to replace and rehabilitate failing sanitary sewer lines. The DCR request for information did not directly address Waste Load Allocations for wastewater treatment facilities, but the City of Waynesboro is concerned about the data being used to determine this facet of the Bay Model. The City of Waynesboro cannot at this time agree in theory to the established Waste Load Allocation of 4 MGD for our facility. Over the course of the last decade, the City of Waynesboro has actively pursued ongoing issues with inflow/infiltration, plant sizing as well as nutrient bay loading. We have invested over $40M in establishing Enhanced Nutrient Removal technology in our wastewater plant alone. Planning for this upgrade and expansion to our treatment facility preceded the State's issuance of the current nitrogen and phosphorous loadings and requirements for ENR, however to date our allocations have been based on a 4 MGD capacity without allowance for our permitted expansion to 6 MGD.

In 2005 the City of Waynesboro submitted comments to the Department of Environmental Quality which reflected our efforts. We requested an amendment at that time. Due to the fact that the City of Waynesboro's change in waste load allocation was not footnoted in the WQM regulation, in 2009, the City of Waynesboro submitted a petition for a revised allocation to the State Water Control Board. At this time, we are discharging well under our allocated load and plan to continue to make proactive decisions both in treatment techniques and infrastructure repairs. In looking toward the future, we do not believe that it is economically viable for our municipality nor the State to limit potential growth or revenues due to an impeded flow allocation.

Analysis

Following is a response to the five primary pieces of information that DCR requested:

1. **Review of Land Use/ Land Cover Data** used in v5.3.2
2. **2011 BMP Inventory** consisting of BMP's installed and implemented between 2006 and 2011
3. **Future BMP Scenarios** and **Potential Strategies** to be employed to meet 2017 and 2025 goals
4. **Resource Needs** to implement strategies and future BMP scenarios

1. Review of Land Use/ Land Cover data used in v5.3.2

These numbers differ significantly from the 5.3 LU/LC data that was originally presented in the fall of 2011. The data used for the City of Waynesboro was in these four categories:

LU/ LC	*ACRES*
Unregulated Urban Impervious	1,349
Unregulated Urban Pervious	5,321
Construction	74
Forest	2,340
Total Area	9,084

The data appears to more accurately reflect land cover conditions in the City, but the acreage attributed to forest cover seems to still be overestimated.

The following table consists of land cover data developed during an Urban Tree Canopy (UTC) study that was derived using similar methodology. The City does have a significant tree canopy that includes older, developed neighborhoods with mature tree canopy that could explain the v5.3.2 forest data.

Land Cover From 2011 Tree Canopy Study					
Land Classes		Acres	% Total Land Area*		% Land Area
Tree Canopy		4,116.80	42.50%		42.80%
Non-Tree Vegetation		3,284.20	33.90%		34.10%
Non-Building Impervious		1,738.10	18.00%		18.10%
Buildings Impervious		481.9	5.00%		5.00%
Water		54.8	0.60%		0.00%
Total Area		9,675.80	100.00%		100.00%

Other important discrepancies between the v5.3.2 data and this study are:

1. The v5.3.2 data does not include Water as a land use category
2. The total area attributed to the City of Waynesboro by the EPA model is 501 acres less.
3. The impervious area attributed to the City by v5.3.2 is 850 acres less than was determined in the UTC study

2. 2011 BMP Inventory Consisting of BMP's installed and implemented between 2006 and 2011

The following table is an inventory of the 2011 progress BMP's in the City of Waynesboro. A discussion of the limitations of this data follows the table.

WAYNESBORO BMP INVENTORY		5.3.2 Data	
	2011 progress	2009 progress	2025 Proposed BMPs
	Acres Treated		
Street Sweep (Acres) (Annual)	10,748		
Urban Nutrient Management (Acres) (Annual)		63	4,538
Impervious Urban Surface Reduction (Acres)			100
Urban Stream Restoration (linft)	400		463
Extended Dry Ponds (Acres Treated)	131	193	400
Dry Ponds (Acres Treated)	239	75	211
Wet Pond Wetland (Acres Treated)	234	132	519
Infiltration (Acres Treated)			304
Filter (Acres Treated)	19	5	265
Construction (Acres) (Annual)	262	15	98
Septic Connections	10	-	1

The Street Sweeping acres treated is an estimate derived from an average of 600 lane miles per month being swept. It is not intended to be accurate as much as to illustrate an on-going practice by the City to reduce sediment and nutrient loads.

The 400 linear feet of streambank restored was at the site of an old DuPont plant on the South River.

The stormwater BMP's that were installed were primarily the result of development activities. A complete stormwater BMP inventory to verify pre-2005 and 2011 progress data is not feasible at this time since stormwater GIS data is being refined.

The Construction category is an average of the acres covered under Land Disturbance Permits by the City ESC Program since 2006. This number is heavily skewed towards the beginning of the reporting period since construction has slowed dramatically since

2008.

The Septic Connections of 10 is a conservative estimate that will increase significantly as Sanitary Sewer Capital Improvement Plans progress.

3. Future Urban BMP Scenarios and Potential Strategies to meet 2017 and 2025 Chesapeake Bay Program goals

The following table includes BMP scenarios that the Public Works Department already employs or would investigate as part of a package to recommend as effective to meet Chesapeake Bay Program goals.

STRATEGY TYPE	BMP	STRATEGY
Capacity Building	Multiple	Locality will investigate the development of a sustainable funding mechanism to support the implementation of urban practices such as pro rata fees or stormwater utility programs.
BMP Implementation	Multiple	Locality will continue to investigate ways to incentivize stormwater retrofits from dry detention basins to extended detention basins or bio-retention basins on private property.
BMP Implementation	Multiple	Locality will investigate implementing LID stormwater BMPs on public land to demonstrate effectiveness and raise awareness.
BMP Implementation	Multiple	Locality will investigate and pursue grant opportunities to fund retrofits of existing stormwater quality control facilities to address water quality.
BMP Implementation	Impervious Urban Surface Reduction	Locality will investigate review of existing landscaping, zoning and subdivision ordinances to ensure they include measures to reduce the amount of impervious surface required and BMPs that enhance the management of stormwater runoff.
Capacity Building	Multiple	Locality will potentially refine urban BMP tracking program.
Capacity Building	Multiple	Locality will examine existing resources/capacity to implement new state requirements for local stormwater management programs.
Capacity Building	Multiple	Locality will work to develop consolidated watershed inventories to include impervious/pervious land cover, stream corridor condition, indentification of healthy watersheds, spatial location of urban BMPs and land area treated.
Capacity Building	Multiple	Locality will investigate the adoption of a DCR administered local Stormwater Management Program.

Capacity Building	Multiple	Locality will investigate the adoption of DCR's Better Site Design Manual to mitigate the impact of stormwater runoff from developed lands.
BMP Implementation	Septic Connection	Require houses to connect to public sewer if/when drainfield fails, if within service area
Capacity Building		Continue to refine the accuracy of progress BMPs, land use, and 2025 implementation scenario data.
BMP Implementation	Street Sweeping Feet	Locality will investigate cost effectiveness of continuing to perform street sweeping activities and best performance measure for tracking progress
BMP Implementation	Urban Nutrient Management	Locality will investigate working with local stakeholders to implement urban nutrient management programs
BMP Implementation	Urban Stream Restoration Or Regenerative Stormwater Conveyance	Locality will continue to pursue funding for restoration of heavily degraded streambanks on the South River and its tributaries

It is important to note that infiltration urban BMP's and wet ponds included in the strategies supplied in v5.3.2 have limited applicability in Waynesboro due to complications and costs associated with karst topography.

The South River TMDL Implementation Plan has significant streambank restoration projects identified as a cost effective way to reduce sediment and phosphorous loads, and the City has been actively pursuing grant funds to complete some of these targeted projects.

4. Resource needs to implement strategies and future BMP scenarios

The following table includes examples of resource needs that would aid the City of Waynesboro in implementing WIP strategies and future BMP scenarios.

Source	**Resource Needs**
Urban Implementation Projects	Funding for design and construction of implementation projects including public and private SWM basin retrofits and stream bank stabilization
Development of consolidated watershed inventories	Funding to perform these activities. Development of a high resolution land cover map by the state for state and locality use.
Continue to refine the accuracy of progress BMPs, land use, and 2025 implementation scenario data.ng program	Funding to support this planning effort.
Septic Connection	Funding for facility fees for residents to connect to public sewer

Conclusion

The City of Waynesboro is willing to continue working with DCR to refine the data needed to improve the application of the Chesapeake Bay model. One of the most significant concerns with the data being used for the Bay model is the Wastewater Load Allocation based on 4 MGD.

The Land Use/ Land Cover data provided in the latest version of the Bay Model is more refined than what Waynesboro staff first saw in the fall of 2011, but based on similar analysis of land cover trends within the City this data set still needs to be refined. DCR TMDL staff was also unable to provide an explanation of how Construction land cover will be used moving forward and how an accredited locally administered ESC Program will be expected to operate within the constraints of the Phase 2 WIP. Limiting the amount of disturbed acreage to be permitted at any one time could be detrimental to a locality, especially if a large commercial or industrial development exceeds the acreage included in the WIP.

The City BMP Inventory data that has been supplied cannot be considered complete since the development of this data from several sources including archived databases was not started until the late fall of 2011. The City is also working to update GIS data for all utilities including stormwater, but this is a large undertaking considering that the base stormwater map was developed in 1961.

The strategies and BMP's identified as potential ways for the City to implement the WIP are varied and several include the term 'investigate'. Any investigation of these strategies that is implemented by the City Engineering Division will be done outside of the core tasks related to the Public Works Department, operation of existing and proposed DCR programs, and project management of existing water quality improvement projects.

Resource needs for the City to implement any of these proposed strategies or BMP's are primarily financial. The resource demands in terms of opportunity cost for staff time even to respond to DCR requests for information should not be overlooked either.

The overall conclusion drawn by the City of Waynesboro Engineering Division is that the data used to determine the loading allocations for the City of Waynesboro is incomplete, and the Division cannot recommend to the City Manager or City Council to commit limited financial resources towards Phase 2 of the Watershed Implementation Plan.

Thank you,

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ESC Program Administrator
I&I Program Manager

CC: Todd Wood, P.E.; City Engineer
CC: Michael Hamp; City Manager
CC: Michael Crocker; City Stormwater Program Manager