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AUDUBON NATURALIST SOCIETY · DC ENVIRONMENTAL NETWORK
MARYLAND MILESTONES/ANACOSTIA TRAILS HERITAGE AREA
NATURAL RESOURCES DEFENSE COUNCIL
SIERRA CLUB, WASHINGTON DC CHAPTER · TRASH FREE MARYLAND
WASHINGTON ROWING SCHOOL**

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Petition to Revise the Anacostia River Trash Total Maximum Daily Load (TMDL)

Dear Dr. Karimi and Mr. Currey:

Pursuant to Section 2-505(b) of the D.C. Administrative Procedure Act¹ and Section 10-123 of the Maryland Administrative Procedure Act,² the undersigned organizations hereby petition the District Department of Energy and Environment (DOEE) and the Maryland Department of the Environment (MDE) to revise the total maximum daily load (TMDL) for trash in the Anacostia River watershed.³ The TMDL, which was adopted in 2010, was intended to

¹ DC Code § 2-505(b) (“Any interested person may petition the Mayor or an independent agency requesting the promulgation, amendment, or repeal of any rule”); *see also* DC Code § 2-502(6)(A) (defining “rule” broadly to include “the whole or any part of any Mayor’s or agency’s statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy or to describe the organization, procedure, or practice requirements of the Mayor or of any agency”).

² Md. Code § 10-123(a) (“An interested person may submit to a unit a petition for the adoption of a regulation.”); *see also* Md. Code § 10-101(g)(1) (defining “regulation” broadly to include “a statement or an amendment or repeal of a statement that: (i) has general application; (ii) has future effect; (iii) is adopted by a unit to: 1. detail or carry out a law that the unit administers; 2. govern organization of the unit; 3. govern the procedure of the unit; or 4. govern practice before the unit; and (iv) is in any form, including: 1. a guideline; 2. a rule; 3. a standard; 4. a statement of interpretation; or 5. a statement of policy.”).

³ Maryland Dep’t of the Environment & District Dep’t of the Environment, *Total Maximum Daily Loads of Trash for the Anacostia River Watershed, Montgomery and Prince George’s Counties, Maryland and the District of Columbia* (Aug. 2010), available at

establish a plan to eliminate trash pollution from the Anacostia River. However, the TMDL is both ineffective and unlawful as written, and it must be revised.

In the past five years, it has become clear that the TMDL's unconventional approach is fundamentally flawed, and the implementing jurisdictions in the watershed – the District of Columbia, Montgomery County, and Prince George's County – will not have the framework and the tools they need to succeed at achieving a trash-free river until the TMDL is replaced with a more workable alternative. DOEE's and MDE's decision rationale document for the TMDL explicitly anticipated that the TMDL might need to be reworked at some point in the future if new information indicated it was necessary.⁴ Because the TMDL was unlawfully structured when it was first adopted, and moreover because the jurisdictions' practical difficulties with implementation have shown that the TMDL is insufficient to ensure compliance with water quality standards, now is the time to revise it. This is particularly true in light of the fact that the TMDL is already being used as a model in other jurisdictions seeking to remedy their own trash pollution problems.⁵ The flaws in the TMDL must be corrected before they are replicated in even more watersheds. Specifically, the TMDL must be revised to set *maximum* loadings for trash. These loadings should presumptively be set at zero unless evidence shows that a greater amount of trash can be discharged consistent with the attainment of water quality standards.

- I. Because it does not establish a maximum trash load that the Anacostia can tolerate, the TMDL is inconsistent with the plain language of the Clean Water Act and its implementing regulations.

The Clean Water Act requires states and the District of Columbia to adopt a “total maximum daily load” of pollutants for waters for which existing effluent limitations are not stringent enough to implement any applicable water quality standard.⁶ Consistent with this, federal regulations require that TMDLs be expressed as a *maximum load*: the greatest amount of pollution that can enter the waterway without violating water quality standards. Yet the Anacostia trash TMDL contains neither an upper limit on trash discharges nor even an analysis of the maximum amount of trash pollution that the Anacostia can handle consistent with meeting water quality standards. Consequently, the TMDL violates legal mandates and must be revised.

http://green.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/Final_Anacostia_Trash_TMDL.pdf (hereinafter “TMDL”).

⁴ EPA Region III, *Decision Rationale: Total Maximum Daily Loads of Trash for the Anacostia River Watershed – Montgomery and Prince George's Counties, Maryland and the District of Columbia* at 5 (Sept. 21, 2010), available at http://green.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/The_TMDL_Decision_Rationale.pdf.

⁵ See MDE, *Total Maximum Daily Loads of Trash and Debris for the Middle Branch and Northwest Branch Portions of the Patapsco River Mesohaline Tidal Chesapeake Bay Segment, Baltimore City and County, Maryland* (Dec. 2014), available at http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Documents/Baltimore_Harbor_Trash/Harbor_Trash_120314_final.pdf.

⁶ 33 U.S.C. § 1313(d)(1)(C).

The TMDL acknowledges that it is premised on a methodology unlike that which is used for the typical TMDL. It says: “It is important to note that, unlike most TMDLs, which are expressed in terms of the loads of a pollutant that may be added to a waterbody, these trash TMDLs are expressed in the negative, i.e., in terms of quantities of trash that must be removed or prevented from entering the waterbody.”⁷

For the TMDL, the quantity of trash that must be prevented from entering the waterways was derived from the estimated baseline load, which was based on analyses of the amount of trash in the river by the District Department of the Environment (DOEE), in collaboration with the Anacostia Watershed Society, and by the Metropolitan Washington Council of Governments (MWCOG). Based on these efforts, the TMDL document assumes that a certain portion of the trash pollution is discharged by several permitted point sources (mostly consisting of a variety of municipal separate storm sewer systems (MS4s) and the combined sewer system in the District), assuming that smaller items were discharged via point sources and that larger items were not.⁸ After attempting to quantify the baseline load and assigning it to point and non-point sources, the document then says that the wasteload allocation (WLA) will be set equal to 100 percent removal of the baseline load from point sources, and the load allocation (LA) will be set equal to 100 percent removal of the baseline load from non-point sources.⁹

Under EPA regulations, a TMDL is supposed to reflect the waterbody’s “loading capacity,” which is defined as “[t]he *greatest* amount of loading that a water can receive without violating water quality standards.”¹⁰ Similarly, the sum of all wasteload allocations for point sources, load allocations for nonpoint sources, plus natural background is supposed to reflect the “portion[s] of a receiving water’s loading capacity” that, when added together (with a margin of safety), comprise the TMDL. In other words, the rules require this TMDL to be expressed as a number that represents the highest amount of trash pollution that is allowed to enter the river in compliance with water quality standards.

EPA guidance confirms this regulatory intent. In the words of the agency: “The objective of a TMDL is to allocate *allowable loads* among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved.”¹¹ Moreover, courts have been unanimous in reading the regulations to require that TMDLs designate a *maximum loading*. To list a few examples:

- “A TMDL is the ‘total maximum daily load’ of a given pollutant that can be added into a navigable water of the United States on a given day. It essentially identifies the

⁷ TMDL at ix.

⁸ TMDL at 27-28.

⁹ TMDL at ix, 11, 39.

¹⁰ 40 C.F.R. § 130.2(f) (emphasis added).

¹¹ U.S. EPA, Office of Water, “Guidance for Water Quality-Based Decisions: The TMDL Process” at Chapter 3 (1991), <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/dec3.cfm> (emphasis added).

maximum amount of a pollutant that can be added to a body of water consistent with attaining applicable water quality standards.”¹²

- “As set forth by EPA in its regulations, a TMDL defines the *maximum amount* of a pollutant that a body of water can receive from point sources, or waste load allocations (“WLAs”), and non-point sources, or load allocations (“LAs”). Thus, a total TMDL is the ‘sum of the individual WLAs for point sources and LAs for any nonpoint sources and natural background.’”¹³
- “A core requirement of any TMDL is to divide sources of contamination along the water body by specifying load allocations, or LAs, to predict inflows of pollution from particular non-point sources; and to then setting wasteload allocations, or WLAs, to allocate daily *caps* among each point source of pollution.”¹⁴
- “A TMDL defines the specified *maximum amount* of a pollutant which can be discharged or ‘loaded’ into the waters at issue from all combined sources. Thus a TMDL represents the cumulative total of all ‘load allocations’ which are in turn best estimates of the discrete loading attributed to nonpoint sources, natural background sources, and individual wasteload allocations (“WLAs”), that is, specific portions of the total load allocated to individual point sources.”¹⁵
- “TMDLs set the *maximum amount* of pollution a water body can absorb before violating applicable water quality standards.”¹⁶

EPA’s regulations do give agencies some flexibility in selecting the metrics that they use to express this maximum cap, stating that “TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure.”¹⁷ However, this provision is fully consistent with the fundamental definition of a TMDL as a “maximum . . . load.” It simply clarifies the options for quantifying the maximum load in a measure that is appropriate for the pollutant and the applicable water quality standards.

There is no maximum loading number in the Anacostia trash TMDL document. To the contrary, the TMDL document clearly states that the “TMDL target equal to 100 percent removal

¹² *Food & Water Watch v. EPA*, 2013 WL 6513826 (D.D.C. Dec. 13, 2013) (internal citations omitted; emphasis added).

¹³ *Am. Farm Bureau Fed’n v. EPA*, 984 F. Supp. 2d 289, 297 (M.D. Pa. 2013) (internal citations omitted; emphasis added).

¹⁴ *Anacostia Riverkeeper, Inc. v. Jackson*, 798 F. Supp. 2d 210, 248-49 (D.D.C. 2011) (emphasis added).

¹⁵ *Dioxin/Organochlorine Ctr. v. Clarke*, 57 F.3d 1517, 1520 (9th Cir. 1995).

¹⁶ *American Farm Bureau Federation v. EPA*, No. 13-4079, 2015 WL 4069224, at *13 (3rd Cir. July 6, 2015) (emphasis added). The court agreed that a TMDL includes at least “an allowable sum of pollutants (i.e., the most nitrogen, phosphorus, and sediment the Bay can safely absorb per day),” while considering and ultimately rejecting plaintiffs’ claims that other elements (such as wasteload and load allocations, attainment deadlines, and reasonable assurances) may not be included in a TMDL *in addition to* the core element of a maximum load.

¹⁷ 40 C.F.R. § 130.2(i).

of the baseline load is not the same as zero (0) trash in the waterway,”¹⁸ and does not otherwise attempt to quantify the amount of trash that could be added to the Anacostia without violating water quality standards.¹⁹

At various places, the trash TMDL document itself implicitly acknowledges that its approach is not truly a TMDL, insofar as it describes what a TMDL is supposed to be:

- “A TMDL establishes the amount of a pollutant that a waterbody can assimilate without exceeding its water quality standard for that pollutant.”²⁰
- “A TMDL is the total amount of pollutant that can be assimilated by the receiving waterbody while still achieving water quality standards or goals.”²¹
- “TMDLs represent an attempt to quantify the pollutant load that can be present in a waterbody and still ensure attainment and maintenance of water quality standards.”²²

These restatements of the law are consistent with the regulations quoted above and, critically, with the plain meaning of the phrase “total *maximum* daily load” in the Clean Water Act.²³ Congress’s use of that term – which clearly contemplates an upper limit on loading – cannot be ignored. In 2006, the U.S. Court of Appeals for the D.C. Circuit decided a challenge to TMDLs developed for the Anacostia.²⁴ In holding that TMDLs expressed as annual and seasonal loads were improper, the court excoriated EPA for interpreting “daily” not to mean “daily” within the context of the TMDL program. The court wrote: “Nothing in this language even hints at the possibility that EPA can approve total maximum ‘seasonal’ or ‘annual’ loads. The law says ‘daily.’ We see nothing ambiguous about this command. ‘Daily’ connotes ‘every day.’ *See Webster’s Third New International Dictionary* 570 (1993) (defining ‘daily’ to mean ‘occurring or being made, done, or acted upon every day’).”²⁵

Given that “maximum,” like “daily,” has an accepted, plain-language definition – “the greatest quantity or value attainable or attained,” or “an upper limit allowed (as by a legal authority) or allowable (as by the circumstances of a particular case),” according to *Webster’s*²⁶ – it is hard to imagine that a court would be inclined to accept an interpretation of the term that does not actually include a maximum load.

¹⁸ TMDL at 11.

¹⁹ The document does assert, in a number of places, that compliance with the baseline load removal approach would lead to water quality standards being met, *see, e.g., id.* at 39 (“the District and Maryland have concluded that removal of 100 percent of the baseline load would achieve the applicable narrative water quality criteria”), but those statements are simply unsupported assertions.

²⁰ TMDL at viii & 1.

²¹ TMDL at 39.

²² TMDL at 47.

²³ *See* 33 U.S.C. 1313(d)(1)(C) (emphasis added).

²⁴ *Friends of the Earth, Inc. v. EPA*, 446 F.3d 140 (D.C. Cir. 2006).

²⁵ *Id.* at 144.

²⁶ Merriam-Webster, “Maximum,” <http://www.merriam-webster.com/dictionary/maximum>.

The D.C. Circuit further noted in its 2006 ruling that just because a pollutant is “poorly suited” to the type of regulation the law requires, an agency “may not avoid the Congressional intent clearly expressed in the text simply by asserting that its preferred approach would be better policy.”²⁷ A statute’s plain language may not be set aside simply because the agency thinks it leads to undesirable consequences in some applications.²⁸ DOEE and MDE must revise the TMDL in order to conform to the letter of the law.

II. The TMDL’s backwards approach is also causing practical problems, making implementation and compliance verification more difficult and rendering the TMDL insufficient to ensure compliance with water quality standards.

In comments on the draft TMDL, certain petitioner organizations warned that the TMDL’s backwards, removal-based approach would be unworkable, and now that prediction is bearing out in practice.

The practical problems caused by the TMDL are threefold. First, the agencies that have begun implementing the TMDL are finding it difficult and time-consuming to estimate the removal efficiencies of their selected management practices, diverting resources away from actual implementation and generating substantial uncertainty about their compliance with the TMDL’s requirements. Second, the baseline surveys that led to the establishment of the TMDL were likely inaccurate, undermining any assurance that the Anacostia jurisdictions will actually have attained water quality standards after satisfying their TMDL obligations. Unless *both* the removal efficiencies and the baseline pollutant load are 100% accurate, implementation of the TMDL’s removal requirements will not result in a trash-free river. Yet experience suggests that achieving total precision for either element is virtually impossible, leading to the conclusion that a removal-based TMDL is unlikely to succeed in eliminating trash from the Anacostia. This is why Congress directed TMDLs to be expressed as maximum loads, as discussed above.

In addition to these two fundamental flaws, the use of weight as a metric is creating a third problem: it establishes environmentally perverse incentives and is more difficult to measure than other metrics, like volume or visual presence of trash. Together, these three practical problems render the TMDL insufficient to ensure that dischargers “attain and maintain the applicable narrative and numerical WQS” as required by federal regulations.²⁹

Difficulty of estimating removal efficiencies

The Anacostia watershed jurisdictions have all experienced difficulty in attempting to accurately estimate the removal efficiencies of their selected management practices. The District of Columbia, Montgomery County, and Prince George’s County are expending a significant amount of time and resources on this task. Many of those resources could be dedicated to actual

²⁷ *Friends of the Earth, Inc.*, 446 F.3d at 145 (internal citations omitted).

²⁸ *Id.*

²⁹ 40 C.F.R. § 130.7(c)(1).

trash reduction efforts if the TMDL were lawfully expressed as a maximum load. While the jurisdictions are doing the best they can under the circumstances, the TMDL's structure works against them by setting them an impossible task; precisely accurate removal efficiencies are simply not available for many of the trash reduction practices that are effective in this watershed. The jurisdictions' difficulties have created uncertainty about how much trash their management practices are removing (or preventing from entering the waterway), and how much their future practices will remove. If the jurisdictions' estimated efficiencies are inaccurate, there will be no way to verify whether they are in fact meeting their removal obligations. This compliance problem would not exist if they were required to meet a maximum loading cap that was verified by monitoring.

- The District of Columbia

As evidenced by the District Department of the Environment (DOEE) draft implementation strategy,³⁰ as well as a presentation given at a trash TMDL stakeholder meeting in December 2013, it is clear that DOEE has struggled – understandably so – to estimate trash removal efficiencies. While it is fairly straightforward to calculate trash removal by structural strategies like litter traps, DOEE has had to engage in a significant amount of guesswork to calculate the efficiencies of nonstructural practices. In the District, such practices include strategies such as the fee on plastic bags, street sweeping, and public education. The estimated efficiencies for all of these practices rely on speculation and presumption. As a result, the confidence in the accuracy of these estimates is low.

For example, consider DOEE's estimated methodology for street sweeping removal efficiencies.³¹ In estimating the amount of trash removed by sweeping environmental hotspots, DOEE had to estimate both the amount of road surface that is able to be swept, accounting for cars being parked in some areas, and the miles of road that are actually swept on any given sweeping day. This already uncertain estimate of street sweeping area is then multiplied by the TMDL's trash loading coefficient for roads, and as discussed in more detail below, we have significant doubts about the accuracies of the TMDL's loading rates. It is not difficult to imagine that the number DOEE arrives at from this calculation may vary significantly from the actual amount of trash being swept from District roads.

DOEE's guesswork is also evident in its calculated removal efficiency for the District's bag law.³² Several factors critical to the calculation are based on estimates: the weight of the average plastic bag; the baseline number of plastic bags in the river; the reduction in bag use, as self-reported by local businesses, who have an incentive to report high reductions in order to

³⁰ District Department of the Environment, *Anacostia River Watershed Trash TMDL Implementation Strategy* (Dec. 2013), available at

http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Draft_Strategy_For_Public_Input.pdf.

³¹ *Id.* at 5.

³² *Id.* at 6.

verify their own compliance with the law; and how much of that reduction is occurring in the Anacostia portion of the MS4. If the estimate for even one of these factors is inaccurate, DOEE's removal efficiency will not reflect the actual amount of plastic bag trash being removed.

Finally, in its 2013 draft implementation strategy, DOEE did not even begin to attempt calculating efficiencies for education and outreach campaigns. DOEE spent years developing its TMDL implementation methodologies; the fact that they are still not finalized is itself proof of the unnecessary effort the TMDL's structure is forcing DOEE to expend.

- Montgomery County

The problems that DOEE is facing, described above, are compounded in Montgomery County because easier-to-quantify structural approaches are not an option there. According to the Alice Ferguson Foundation, because Montgomery County is the jurisdiction farthest upstream, it has very few direct and substantial outfalls to the Anacostia and its tributaries.³³ Trash pollution in the county comes predominantly from non-point sources. As a result, Montgomery County Department of Environmental Protection (DEP) cannot simply install structural trash traps and nets and remove large quantities of trash at once. Even where structural devices could be used to capture large amounts of trash within tributaries, DEP engineers are uncertain that those devices could be installed without causing an obstruction that might cause flooding after rain events. Because of this, Montgomery County's management practices are mostly dispersed and non-structural, and DEP must rely heavily on modeling to determine the amount of trash these practices capture, as opposed to measuring the amount of trash that is physically removed from local waterways.

DEP is using many of the same nonstructural strategies being deployed in the District of Columbia, and it is facing many of the same difficulties in quantifying removal. Like DOEE, Montgomery County is forced to estimate removal efficiencies based on assumptions with potentially significant degrees of uncertainty. The county's plan for attaining wasteload allocations for all stormwater-related TMDLs, including trash, says that school-based anti-litter programs reduce trash from 12 percent of residential land use, based on an assumption that "half of residential land use is influenced by school age kids, effectiveness of messaging is 40% and willingness to participate is 60% or $.5 \times .4 \times .6 = .12$."³⁴ The plan does not explain how DEP staff arrived at these numbers. Likewise, littering and illegal dumping enforcement are estimated to reduce trash from 5 percent of commercial and industrial land use because of assumptions that "100% of industrial and commercial hot areas are targeted and 8% awareness and 60%

³³ Alice Ferguson Foundation, *Trash Policy and Regulation Implementation Partnership: Final Grant Report* at 4 (Dec. 13, 2013) [attached as Exhibit A].

³⁴ Montgomery County Department of Environmental Protection, *Anacostia Watershed Implementation Plan* at 42 (Jan. 2012), available at http://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Anacostia/AnacostiaRiverWIP_FINAL.pdf.

effectiveness, or $1.0 \times .08 \times .6 = .05$.”³⁵ Again, the plan provides no explanation of how these particular assumptions were made, or what degree of confidence DEP staff have in their accuracy. Because of these difficulties, DEP staff have indicated that they are not even taking credit for the trash reduced through many of these programs.

During interviews with the Alice Ferguson Foundation, DEP staff stated that they were hesitant to attempt quantifying the county’s reductions thus far because of the high risk of inaccuracy inherent in its modeling and monitoring efforts. When a jurisdiction is unwilling even to guess at what its efforts are accomplishing for fear that the modeling numbers will not reflect reality, it is clear that the chosen approach is not working.

Ultimately, for Montgomery County, as for the District of Columbia, this convoluted and imprecise calculation of removal efficiencies is undermining confidence in assessments of the county’s compliance. This problem would not exist if the TMDL were properly, lawfully structured as a maximum load. Establishing a maximum load and assessing real-world results through monitoring would also empower the county to rely more on trash reduction measures that are effective but difficult to quantify through hypothetical formulas.

- Prince George’s County

Similar to the other two jurisdictions’ plans, Prince George’s County’s draft trash reduction strategy relies heavily on estimated removal efficiencies based in large part on assumptions. As the Anacostia Watershed Society noted in its comments on the draft strategy, the county’s plan centers around efforts that are difficult to measure, such as education and outreach.³⁶ In the words of the county’s Department of the Environment (DOE), “For some programs (i.e., cleanup events and trash BMPs), the amounts of trash reported from survey results are summarized and converted into annual values with care to avoid duplication when more than one group reported results for the same program. For other programs (i.e., education programs and street sweeping), *best estimates were made using the data available, estimation methods found in the literature, and reasonable assumptions.*”³⁷

The draft strategy’s approach to calculating the efficiency of street sweeping programs demonstrates the uncertainty inherent in implementing a reduction-based requirement. The strategy states that street sweeping effectiveness was computed using “the estimated trash load on roadways, the acres of roads swept, the frequency of sweeping, and a method from the literature to determine effectiveness based on frequency of sweeping compared to rainfall

³⁵ *Id.*

³⁶ Anacostia Watershed Society, Comments on the Draft Implementation Plan for the Anacostia River Watershed Trash Total Maximum Daily Load in Prince George’s County (Dec. 24, 2014) [attached as Exhibit B].

³⁷ Prince George’s County Department of the Environment, *Implementation Plan for the Anacostia River Watershed Trash Total Maximum Daily Load in Prince George’s County (Draft)* at 17 (Nov. 2014), available at http://www.princegeorgescountymd.gov/sites/Sustainable/Documents/AnacTrash_IP_Draft_25Nov2014.pdf (emphasis added).

events.”³⁸ While some of these factors are relatively easy to calculate – such as the geographic extent and frequency of sweeping – the literature-based method of determining effectiveness is explicitly based on assumptions acknowledged to be incorrect. The study from which DOE borrowed this method “found that the maximum expected efficiency of street sweeping decreased with the ratio of street sweeping frequency to significant storm frequency. This approach assumes that street sweeping is 100% effective at removing trash, and that storms are 100% effective at washing trash off the roadway and into the piped MS4. *In reality, this is rarely the case* but the general approach is useful for reference and benchmarking.”³⁹

The estimated effectiveness of trash clean-up programs is also admittedly inexact (“The number of pounds of trash collected was not compiled for all cleanup events, therefore, the amount of trash collected from cleanup programs in the Anacostia watershed is an estimate”⁴⁰), and the projected efficiency for the posting of “No Dumping” signs is based on a single statistic from Texas (“In an evaluation of the effectiveness of ‘No Dumping’ signs, a task force in central Texas found a reduction in dumping incidents of approximately 70% after appropriate signs (i.e., metal, large, strategically placed) were installed”⁴¹). The Anacostia Watershed Society’s comments on the draft strategy discuss the likely inaccuracy of these estimates in further detail.⁴²

Information provided by Anacostia Riverkeeper casts additional doubt on the county’s removal efficiency for clean-up programs.⁴³ Data from clean-ups held from April 2012 through November 2014 reveal that per-person and per-hour trash removal rates vary widely from event to event and thus are not a good predictor of future clean-up event results. Moreover, the county’s estimate of 1,400 pounds of trash removed during a single community clean-up is a highly optimistic estimate given that only a few events in Anacostia Riverkeeper’s database removed that quantity of trash; each of those events involved a massive outlay of marketing and publicity effort and took place at a known illegal dumping hotspot. The most recent, at Kenilworth Park, required 160 volunteers performing 480 hours of labor, supported by 46 hours of paid staff time. This clean-up removed 2,061 pounds of trash, but only 828 pounds of that total counted toward TMDL wasteload allocations; the rest consisted of large items that fell into the load allocation category.⁴⁴ This information suggests that not only is Prince George’s County’s estimated efficiency highly imprecise, but also that it may in fact be impossible to develop an estimate that is sufficiently accurate for purposes of assessing TMDL compliance.

For some practices, DOE adopted the efficiency calculation methodologies used by DOEE and/or Montgomery County DEP. Prince George’s County’s approach to calculating reductions from education programs was copied exactly from DEP’s plans, and the estimated

³⁸ *Id.* at 21.

³⁹ *Id.* at 22 (emphasis added).

⁴⁰ *Id.* at 19.

⁴¹ *Id.* at 33.

⁴² Anacostia Watershed Society, Comments on the Draft Implementation Plan [Exhibit B], at 3-4, 5-6.

⁴³ Anacostia Riverkeeper, Clean-Up Event Data (unpublished spreadsheet) [attached as Exhibit C].

⁴⁴ *Id.*; Personal communication from Mike Bolinder, Anacostia Riverkeeper, Apr. 2, 2015.

success rate of plastic bag fees was also borrowed without any additional analysis.⁴⁵ As discussed above, those other jurisdictions had difficulty deriving these methodologies with the needed precision; they are no more likely to be accurate when applied in Prince George's.

In conclusion, the Prince George's County draft trash reduction strategy – like the plans being developed and implemented in the District of Columbia and Montgomery County – demonstrates the practical pitfalls inherent in the TMDL's backwards approach. All three jurisdictions are developing removal efficiencies that are almost certainly inaccurate to some degree; assessing their compliance with the TMDL based on these efficiencies inspires little confidence in the implementation process leading to the intended result.

To be clear, the problem is not that the jurisdictions have done a poor job developing their efficiencies. The problem is that the task itself is unachievable. For most trash reduction practices, efficiencies simply cannot be estimated accurately enough to assess compliance with a requirement to reduce a specific amount of trash. It is unfortunate that the TMDL's reliance on removal efficiencies is preventing some of the watershed jurisdictions from taking credit for their trash removal efforts, and in some cases causing them to shy away from harder-to-quantify approaches in favor of ones with better-established removal rates. In essence, the TMDL has turned trash reduction into a math exercise and diverted necessary attention away from implementation of strategies that are actually successful on the ground.

It is important to note that the jurisdictions would still need to estimate the removal efficiencies of trash reduction practices for planning purposes, even if the TMDL were properly structured as a maximum loading cap, so that they could prospectively determine the necessary level of effort and appropriately design their policies and programs. For that reason, their work estimating removal efficiencies will not have been wasted effort if the TMDL is revised. However, these approximated removal efficiencies are not, and cannot be, sufficiently accurate to form the *sole basis* for assessing legal compliance with wasteload allocations. The experience in all three jurisdictions shows that the necessary precision is not possible to achieve. For this reason, the structure of the TMDL has made implementation unnecessarily difficult and compliance nearly impossible to verify as a practical matter.

Accuracy of the baseline

Not only are the jurisdictions expending significant time and resources to implement this TMDL, but they cannot even be confident that once they remove the required amount of trash, they will have achieved a trash-free Anacostia. This is because the integrity of a removal-focused TMDL depends entirely on the accuracy of the baseline estimate. The TMDL contemplates that dischargers will be in compliance with wasteload allocations as long as they show that they have eliminated the requisite amount of trash from their discharges (pegged to their estimated "baseline" discharge) – even if they are still *in fact* contributing trash to local

⁴⁵ Prince George's County, *Implementation Plan*, at 18, 34.

waterways. The only way that this scheme even approaches a zero discharge standard is if the surveys that were done were precisely correct. We have significant concerns about the precision of the trash surveys conducted, for the following reasons. Because of these potential inaccuracies, the jurisdictions may find that they have spent many years and scarce resources implementing this TMDL, without actually achieving the intended results.

First, the surveys were based on snapshots of trash discharges combined with information about regional land uses. For both Maryland and the District, as we understand the effort, a total of 18 stormwater outfalls were monitored.⁴⁶ Following these surveys, areas throughout the watershed were assigned trash loading rates based on the land use type draining to the MS4, on the assumption that areas with similar land uses to those areas that were monitored would have similar loading rates. While we do not mean to understate the effort involved with monitoring 18 sites – indeed, it strikes us as difficult and time-consuming – we note that it only covered a miniscule fraction of the Anacostia watershed’s MS4 outfalls, of which there are 3,225.⁴⁷ As such, the potential variability of loading rates from the 99.4 percent of the outfalls that were not monitored is an important reason to be concerned that the surveys did not accurately reflect actual trash pollution rates.

Second, the design of the monitoring effort itself appeared to be subject to undercounting trash items. For instance, in DC, the TMDL document explains that “[i]t was determined that the large amount of organic debris moving through the storm sewer system during the fall and winter would overwhelm the trash traps; therefore, monitoring was not conducted during those seasons.”⁴⁸ In Maryland, “[t]o reduce the likelihood of major blowouts during larger, more intense rainfall events, the six trash fences had a maximum operational/working height of approximately 2 feet above the invert of the channel.”⁴⁹ In both DC and Maryland, smaller trash items could pass through the traps, as the DC effort used one-inch diameter mesh, and the MWCOG effort used two-inch fencing plus some additional sub-sampling using a one-inch sub-sampler.⁵⁰

Third, some of the loading rates for different land uses were troubling. For example, in Maryland, the low-density residential rate was based on a single site, and was set at 1.195 pounds per acre per year,⁵¹ whereas the low-density loading rate in the District was 4.52

⁴⁶ See TMDL at 13 (discussing DC monitoring of 10 outfalls) & 16 (discussing Montgomery & Prince George’s County monitoring of eight outfalls).

⁴⁷ *Id.* at 5.

⁴⁸ *Id.* at 13.

⁴⁹ *Id.* at 16. It is unclear from the document whether (and, if so, how frequently) such events may have occurred during the monitoring period.

⁵⁰ *Id.* at 13 & 16. In fairness, we acknowledge that MWCOG staff informed us during the development of the TMDL that the sampling would not let all smaller items through, because the traps would get blocked by other debris, rendering the openings functionally smaller. However, we simply lack information about how comprehensive the sampling was with respect to smaller items.

⁵¹ *Id.* at 34.

lb/ac/yr;⁵² no explanation was offered for a 278% higher loading rate in the District. Similarly, for Maryland, loading rates for commercial, industrial, and institutional areas were based on a single site and set at 2.22 lb/ac/yr,⁵³ whereas the District has far higher rates – 22.08 lb/ac/yr for commercial areas, 18.90 lb/ac/yr for industrial areas, and 25.45 lb/ac/yr for institutional areas.⁵⁴ These dramatic differences were not discussed. Finally, Maryland’s extractive, transportation, and bare ground areas’ loading rates were not monitored and were based on the commercial/industrial/institutional rate of 2.22 lb/ac/yr,⁵⁵ even though the transportation and similar areas’ loading rate in the District was 31.12 lb/ac/yr.⁵⁶

Fourth, the total estimate of trash being added to the watershed was significantly lower than the one prior estimate that was widely publicized. It was previously reported that an estimated 20,000 tons of trash enter the river annually.⁵⁷ Staff involved with the development of the TMDL indicated that this prior estimate was based on an estimate from outside our region, and of uncertain reliability. Maybe so – however, it bears reflecting that this prior, generally accepted, estimate is 3,170% higher than the estimate contained in the TMDL, which is approximately 631 tons/year.⁵⁸

Fifth, the results of trash collection programs already underway in the District provide another reason to doubt the baseline’s accuracy. For example, the TMDL’s 631 ton/year estimate appears preposterous in light of the statement elsewhere in the TMDL that DC Water’s Floatable Debris Removal Program alone recovers around 400 tons/year.⁵⁹

Finally, and critically, the TMDL contains no mechanism for adjusting the baseline to reflect population growth in the Anacostia watershed. Even if the baseline were accurate when the TMDL was developed, it has already grown out-of-date with the recent addition of new District and Maryland residents, given that each person living in the Anacostia watershed generates trash. The District of Columbia’s population has grown by over 53,000,⁶⁰

⁵² *Id.* at 30.

⁵³ *Id.* at 35.

⁵⁴ *Id.* at 30.

⁵⁵ *Id.* at 35.

⁵⁶ *Id.* at 30. Even if one were to combine the District’s transportation, etc. rate with its 0.32 lb/ac/yr rate for parks and open spaces in order to approximate the category used for Maryland (extractive, transportation, and bare ground uses), it would be significantly higher than the rate used for Maryland.

⁵⁷ See, e.g., National Oceanic and Atmospheric Administration et al., Anacostia Watershed Project: Marine Debris Cleanup and Prevention, at 1 (May 2005), available at http://www.darrp.noaa.gov/partner/anacostia/pdf/marine_debris_proposal_revised_final_web.pdf; Anacostia Watershed Restoration Partnership, Metropolitan Washington Council of Governments, Anacostia Watershed Trash Reduction Strategy, at 1 (Apr. 2007), available at http://www.anacostia.net/Archives/download/AnaTrashStrategy_final.pdf.

⁵⁸ See TMDL at 44-45, Tables 25, 27, 29, & 31 (annual TMDLs for Montgomery County, Prince George’s County, Upper Anacostia in DC, and Lower Anacostia in DC of 324,660 lbs., 695,114 lbs., 176,922 lbs., and 65,794 lbs., respectively).

⁵⁹ TMDL at 49.

⁶⁰ DC Office of the Chief Financial Officer, *DC Economic Indicators: July 2015*, available at <http://cfo.dc.gov/sites/default/files/dc/sites/ocfo/publication/attachments/EIJuly2015.pdf>.

Montgomery County's population by over 58,000,⁶¹ and Prince George's County's population by over 40,000⁶² since the TMDL was adopted in 2010. While not all of these 150,000 new residents live in the Anacostia watershed, it is clear that the TMDL baseline no longer reflects the actual amount of trash generated by the watershed's inhabitants.

Because of these uncertainties surrounding the baseline's accuracy, the jurisdictions can have little confidence that their current efforts will actually result in the goal of zero trash in the river. This problem only exists because the TMDL relies exclusively on an estimated baseline to determine the jurisdictions' removal obligations. Establishing a *maximum load* would eliminate the direct linkage between the estimated baseline and the dischargers' legal duties. Instead, those obligations would be oriented more appropriately toward achieving the ultimate loading target.

Use of trash's weight as the relevant metric

The TMDL's use of weight as a metric has caused practical problems with implementation as well. First, the emphasis on weight creates perverse incentives because it leads the implementing jurisdictions to focus their efforts on removing the heaviest items of trash from the watershed, like glass bottles, rather than the items which are most environmentally harmful, like lightweight but damaging plastic bags. (An Anacostia Watershed Society survey found that plastic bags make up 45% of the trash in regional streams.⁶³ But because each individual bag weighs very little, the TMDL creates less of an incentive to eliminate them from the watershed.) At a stakeholder meeting on its trash TMDL implementation strategy in 2013, DOEE staff agreed that the structure of the TMDL creates this incentive.

Additionally, the use of weight as a metric complicates efforts to verify compliance. Weights are difficult to measure for source reduction and prevention strategies, not well suited to volunteer monitoring, and require formulas and assumptions to calculate trash totals among other debris collected in structural devices.⁶⁴ In fact, measuring the weight of trash physically removed from local waterways may not even be accurate if the trash is weighed while still wet; this inaccuracy may over-count the effectiveness of stream clean-up programs and structural trash removal measures.⁶⁵ The District discounts the weight of trash it collects by skimmer boat

⁶¹ U.S. Census Bureau, "State & County Quick Facts – Montgomery County, Maryland," <http://quickfacts.census.gov/qfd/states/24/24031.html>.

⁶² U.S. Census Bureau, "State & County Quick Facts – Prince George's County, Maryland," <http://quickfacts.census.gov/qfd/states/24/24033.html>.

⁶³ TMDL at 33.

⁶⁴ Alice Ferguson Foundation at 6.

⁶⁵ See Prince George's County, *Implementation Plan*, at 1 ("To determine the TMDL point source baseline loading rate (WLA), trash traps (fences) were placed at storm drain outfalls and the captured trash was weighed. While not completely dry, the trash weight value is considered dry because after the trash was taken from the fences, organic matter was removed and excess free water was poured/shook from the trash.").

and in the Hickey Run BMP by 20% to account for water remaining in glass and plastic bottles, but it is unclear how this reduction factor was selected.⁶⁶

A spatial or volumetric measure would be a more commonsense approach: it can be used to measure the success of both prevention and removal efforts, it is easier for volunteers to use because it can be assessed visually, and it is how Anacostia watershed residents will ultimately judge the cleanliness of the river. A measure that reflects the visible appearance of trash would also be more relevant to assessing whether the Anacostia is attaining its designated use for recreational activities. It is not the weight of trash but its visual impact that matters to recreational users of the watershed. The use of the waterway is impaired for rowers, kayakers, boaters, and other users due to the visual presence of floating bottles, or tires and television sets washed up on riverbanks. Visual blight, regardless of how much the litter weighs, is what depresses property values, undermines community pride, and exacerbates crime.⁶⁷ Finally, focusing efforts more directly on visual metrics could help reduce the incidence of littering in the first place. The presence of litter in communities encourages more people to litter; this is the basis of the Broken Window Theory.⁶⁸ Conversely, reducing the visual impact of litter would make future littering less likely, resulting in a virtuous cycle or positive feedback loop and decreasing the amount of trash generated in the watershed.

Conclusion

MDE and DOEE must revise the TMDL to establish a *maximum* trash load, which should presumptively be set at zero unless evidence proves that the Anacostia can handle a greater amount of trash and still meet water quality standards.⁶⁹ Washington, DC's standards require that "[t]he surface waters of the District shall be free from substances attributable to point or nonpoint sources discharged in amounts that . . . [s]ettle to form objectionable deposits [or] [f]loat as debris, scum, oil or other matter to form nuisances. . . ."⁷⁰ Further, waters such as the Anacostia that are designated Class A waters "shall be free of discharges of untreated sewage, litter and unmarked, submerged or partially submerged, man-made structures which would constitute a hazard to the users."⁷¹ Maryland's water quality standards similarly provide that waters in the state "may not be polluted by... [a]ny material, including floating debris,... in amounts sufficient to... [b]e unsightly;... [c]reate a nuisance; or... [i]nterfere directly or

⁶⁶ District Department of the Environment, *Anacostia River Watershed Trash TMDL Implementation Strategy* at 4-5.

⁶⁷ See Andy Coghlan, "Graffiti and Litter Lead to More Street Crime," *New Scientist*, Nov. 21, 2008, available at <http://www.newscientist.com/article/dn16096-graffiti-and-litter-lead-to-more-street-crime>.

⁶⁸ See Kees Keizer et al., "The Spreading of Disorder," *Science*, Vol. 322 (Dec. 12, 2008), available at <http://www.influenceatwork.com/wp-content/uploads/2012/02/BrokenWindowsArticle.pdf> (discussing empirical evidence for theory that signs of disorderly behavior, such as littering, cause the behavior to spread and also results in a general decline in compliance with laws and rules).

⁶⁹ We request that the existing TMDL remain in place pending the adoption of a revised TMDL so that implementation efforts can continue uninterrupted.

⁷⁰ 21 D.C.M.R. § 1104.3.

⁷¹ *Id.* § 1104.1(a)-(b).

indirectly with designated uses....”⁷² These standards suggest that a zero trash load is necessary. Indeed, the current TMDL presumes that this is the case, as a zero trash load is what it purports to achieve. However, DOEE and MDE must analyze the amount of trash pollution that the Anacostia can handle consistent with meeting water quality standards in order to determine the maximum load that would be appropriate.

Precedent exists for establishing a zero trash load in a TMDL. For example, the Los Angeles River trash TMDL states explicitly, “The numeric target for this TMDL is 0 (zero) trash in the water.”⁷³ The California Regional Water Quality Control Board justified this target based on the need to achieve narrative water quality objectives, and based on the lack of any “information ... to justify any other number for the final TMDL target that would fully support the designated beneficial uses.”⁷⁴

This more straightforward approach of establishing a maximum load would both comply with federal regulations and increase the likelihood of achieving a trash-free river, by divorcing assessments of compliance with the TMDL from the uncertainty inherent in the implementing jurisdictions’ estimated removal efficiencies and the TMDL’s baseline. Ultimately, under federal regulations, permit terms that translate TMDL limits into enforceable requirements must be “consistent with the assumptions and requirements of available [wasteload allocations],” a standard that allows the permit writer to exercise some discretion in crafting permit conditions.⁷⁵ The TMDL itself, however, must set forth an objective statement of the loadings necessary to achieve water quality standards.

We look forward to receiving a timely response to this petition.⁷⁶ Please do not hesitate to contact us with any questions or concerns.

⁷² COMAR § 26.08.02.03(B)(2).

⁷³ California Regional Water Quality Control Board, Los Angeles Region, *Trash Total Maximum Daily Loads for the Los Angeles River Watershed* at 20 (July 27, 2007), available at <http://www.epa.gov/waters/tmdl/docs/34863-RevisedStaffReport2v2.pdf>.

⁷⁴ *Id.*

⁷⁵ 40 C.F.R. § 122.44(d)(1)(vii)(B).

⁷⁶ MDE must respond to this petition within 60 days. Md. Code § 10-123(b) (“Within 60 days after the petition is submitted, the unit shall: (1) in writing, deny the petition and state the reasons for the denial; or (2) initiate the procedures for adoption of the regulation.”). The District of Columbia has no analogous regulatory deadline.

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EXHIBIT A

Alice Ferguson Foundation,
Trash Policy & Regulation Implementation
Partnership: Final Grant Report
(Dec. 13, 2013)



Final Report Summary Sheet

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Grant Amount: \$50,000

Project Title: Trash Policy and Regulation Implementation Partnership

Grant Period: November 1, 2012 to October 31, 2013

Project Budget: \$50,000

Report Date: December 13, 2013

Trash Policy and Regulation Implementation Partnership Final Grant Report

I. Introduction

In 2010, the U.S. Environmental Protection Agency (EPA), District of Columbia Department of the Environment (DDOE), and Maryland Department of the Environment (MDE) declared the Anacostia River impaired by trash under the Clean Water Act, and issued a Total Maximum Daily Load (TMDL) for trash for the Anacostia River watershed. The TMDL obligated Montgomery and Prince George's Counties, Maryland, and the District of Columbia, to use best management practices (BMPs), regulation, and policy to remove a baseline weight of trash from the watershed each year.

The limits in place are intended to remove 100 percent of the pollutant load from the river, ensuring no manmade debris is visible on the surface, banks, or bottom of the river and its tributaries. The pollutant load was determined via monitoring and collection estimates in 2008, and allocated by each jurisdiction. Unlike TMDLs for other pollutants like nitrogen and sediment, and unlike the trash TMDL for the Los Angeles River, the Anacostia trash obligations are based on the weight of trash removed from the waterways, not the amount of trash actually found in the river. However, addressing land-based trash pollution is an important component to preventing it from reaching the river as it moves downstream into waterways or into storm drains, which often empty into the Anacostia and its tributaries.

The jurisdictions report on the progress of their implementation via several channels, including various committees of the Metropolitan Washington Council of Governments (MWCOG) and the annual Trash Summit convened by the Alice Ferguson Foundation (AFF). Progress on implementation and meeting the obligations set by the TMDL has been uneven across the jurisdictions. In 2012, the Summit Fund of Washington awarded a grant to AFF and the Anacostia Watershed Society (AWS) to assess the progress made, identify what is hindering progress, and make recommendations for improvement.

At this time, none of the jurisdictions are fully meeting their removal obligations. The status of each jurisdiction's progress, and a summary of challenges they have faced, are described in Section 3.

II. Methodology

AFF and AWS compiled an inventory of existing BMPs from each jurisdiction, including trash load removed and costs where available (see Attachment A). This data came from annual reports of the jurisdictions' municipal separate storm sewer system (MS4) permits, jurisdictional reports submitted to the annual Trash Summit, presentations to the MWCOG Anacostia Watershed Management Committee, and individual communication with key parties. Individual communication, including meetings and phone calls with agency and program directors in each jurisdiction, also provided qualitative context for the BMP data. Together, this research informed the project team's assessment of each jurisdiction's progress toward meeting TMDL obligations.

III. Progress Report

District of Columbia

The District is home to eight miles of the nine-mile Anacostia main stem, but only 20 percent of the total watershed. As the furthest downstream of the jurisdictions, the District has the greatest volume of trash available to remove, as it can capture trash pollution generated not just within its boundaries but what travels down from Maryland. The District is required to remove 665 pounds per day from its portion of the watershed.

Since 2008 the District of Columbia has implemented the following BMPs:

- Three different types of **in-stream devices** have been implemented including trash traps, which removed 3,600 pounds of litter from 2008 to 2011 in Nash Run; 3 Bandalongs each capturing 1,800 to 7,200 pounds per device; and a custom in-stream capture device that removes an estimated 12,800 pounds per year. The District works with local non-profits, including AWS, to maintain the traps. More traps are planned.
- **Sewer and Sewsershed devices** include catch basin inserts that remove 6,000 pounds annually and a large trash BMP at Hickey Run that removes pollutants, including 10,000 pounds of trash annually.
- **Big Belly Solar Compactors** were studied for their ability to reduce litter and have been installed in several neighborhoods. The District has plans to expand public recycling and trash receptacles as part of the Sustainable DC plan.
- **Street Sweeping** has been enhanced to focus on trash hotspots within the Anacostia watershed. **Skimmer boats** remove an estimated 870,000 pounds annually of litter and organic debris from the Anacostia. DDOE only reports a fraction of this amount for TMDL purposes; the exact formula and basis for that model remains classified despite repeated requests.
- The District has increased **litter enforcement**, creating a littering fine of \$75 for pedestrians and \$100 for vehicles. They are similar to a speeding ticket. The fines were first piloted in Police Districts 4 and 6, with the vehicular fine becoming District-wide in 2012.
- The District implemented a **Bag Fee** on single-use bags, both plastic and paper, for retailers that sell food items. It has raised a total of \$7 million in revenue and has led to approximately a 60% reduction in plastic bag litter found at cleanups in the District since before the fee took effect. The District also gave out 45,000 reusable bags to encourage behavior change and promote the bag fee and has funded a large-scale research project to understand plastic bag consumption rates and effectiveness of the fee on behavior change.
- AFF's **Regional Litter Prevention Campaign** was launched in 126 schools using posters and 480 middle-school students went on field studies through Meaningful Watershed Education Experiences (MWEEs). Currently AFF is launching the campaign within the Anacostia watershed at a grassroots level, working with civic associations, businesses, elected officials, schools, recreation centers, faith-based groups, and other organizations.
- Several **cleanups** are hosted in the District every year including the Annual Potomac River Watershed Cleanup, AWS Earth Day Cleanup, and All Hands Day events.
- Created as part of the Anacostia Trash Reduction Strategy, the District strategically **identifies trash hotspots** to target certain streets and neighborhoods for BMPs, such as street sweeping.

DDOE has announced that it will issue a new Trash Reduction Strategy on December 19, 2013, detailing its progress so far. This report will include reporting protocols and the District's strategy for

closing any remaining gap. Requests for an advance copy of this report, originally planned for a summer 2013 release, have been repeatedly denied.

Montgomery County

Montgomery County is required to remove 626 pounds of trash per day from its portion of the Anacostia watershed. This requirement is included in the county's current MS4, but the Department of Environmental Protection (DEP) is not yet reporting its progress to MDE.

Unlike the District and Prince George's County, Montgomery County has focused heavily on source reduction and trash pollution prevention. It is the furthest upstream and thus, relative to the other jurisdictions, the County has very few direct and substantial outfalls to the Anacostia River and its tributaries. In other words, the county cannot simply install structural trash traps and nets and remove large quantities of trash at once; the trash pollution comes predominantly from non-point sources. Additionally, where structural devices might capture abundant trash within tributaries, county engineers are uncertain that the devices could be installed and function without obstruction that could cause flooding after rain events.

This preventive approach means that the BMPs are more disparate, and also must rely on modeling to determine the amount of trash prevented from reaching the waterways, as opposed to weighing trash physically removed.

Since 2011, Montgomery County has implemented several BMPs:

- **Education and outreach**, using AFF's Regional Litter Prevention Campaign, a public education campaign designed to change littering behavior. The public service advertisements run periodically throughout the year on the county's RideOn buses, in bus shelters, and on the sides of their new gas-powered recycling trucks.
- The **bag law**, which requires retailers to collect five cents from shoppers for every disposable plastic and paper bag distributed at checkout, has reduced the number of disposable bags used in the county. Since the law took effect in January 2012, volunteers at stream cleanups, particularly at AFF's annual Potomac River Watershed Cleanup, recorded 50 percent fewer plastic bags collected.
- **Bioswales** have been installed along April and Stewart Lanes in the White Oak portion of the county as part of new green streets construction. DEP has collaborated with nearby property owners to assist in maintaining the bioswales on a monthly basis, including removing and tracking trash that collects in the swales via stormwater runoff.
- Also in the White Oak area, the county is experimenting with different designs of **inlets to storm drain vaults**, testing whether they capture more street litter. The vaults are vacuum-cleaned but still contain large quantities of organics and grit, requiring sorting to determine actual trash weights.
- **Street Sweeping** occurs countywide.
- The **transit stop trash management program** works to remove trash and litter at transit stops, such as bus stops and rail stations, areas prone to high litter rates.

Meanwhile, the county is assessing the effectiveness of its work thus far; the success of source-reduction activities is best measured by monitoring trash pollution after implementation. MWCOG conducts semiannual streamside monitoring at 15 sites to determine accumulation rates. These assessments are scheduled independent of weather and may skew after recent rain events, introducing

the risk of inconsistency. DEP also observes the contents of 12 manholes in the White Oak drainage area with the goal of determining trends in behavior. For instance, if a storm drain is near a bus stop or convenience store, do the contents of the manhole indicate a litter hotspot where dedicated outreach might be effective?

The county also engages volunteers to monitor specific hotspots, in an effort to expand monitoring efforts over a larger geography. However, recruiting volunteers for this work has been challenging because volunteers are not inclined to measure and weigh trash. A grading system to determine presence or absence of trash would make monitoring far easier for volunteers. This type of program is working successfully in Baltimore as part of Blue Water Baltimore's Clean Water Communities program. Likewise, AFF has piloted a volunteer program measuring trash visually through photo and visible trash monitoring in a few locations in Montgomery County, but recruiting a substantial number of volunteers to provide informative information proved difficult.

At this time, the county feels that its monitoring data is insufficient to show real progress. According to Meo Curtis, DEP's manager of Stormwater Permit Coordination, the county is hesitant to quantify its reductions because the monitoring program is small in scale, has high risk of inaccuracy, and likely will only show a small reduction, leading to inaccurate conclusions.

Prince George's County

Half of the Anacostia watershed is in Prince George's County. The county has struggled through the past decade with ineffective government and budget reductions. In November 2012 County Executive Rushern Baker appointed Adam Ortiz to direct a new, reorganized Department of Environmental Resources (DER). Ortiz spent much of 2013 restructuring and re-staffing the department to make it more progressive and efficient.

In addition, Prince George's remains the only one of the three jurisdictions without an MS4 permit that includes trash requirements. As TMDLs are only legally enforceable via the MS4 permit, DER has been under no legal obligation to begin implementation. Recognizing that the new permit will be issued in the near future, DER contracted with EA Engineering in March 2013, at a cost of \$133,000, to assess existing trash capture and prevention programs in the county. The contractor sent a survey to County agencies, municipalities in the watershed, and several non-profit organizations. The survey (see Attachment B) yielded responses from 12 municipalities, 5 county agencies (including the Departments of Corrections and of Public Works and Transportation (DPW&T)), and two non-profits, and included information on source control, trash cleanup events, street sweeping programs, structural BMPs, costs, hotspots, and successes and recommendations.

EA Engineering will compile all of the existing programs and the total trash currently captured through those efforts, analyze the gap between current and obligated trash removal loads, and recommend new methods and expansion of effective existing programs in order to close the gap. The report will also develop consistent reporting metrics for all programs so that future monitoring yields accurate records. This report is due to DER in May 2014. The project partners are scheduling a meeting, facilitated by DER, to review the consultant's progress and early recommendations. The meeting is expected to occur in January 2014.

Moses Faridan of DER's Sustainable Initiatives Division estimates that implementation will take a year to roll out once the new MS4 permit is in place, meaning that new trash capture will likely begin in 2015.

The county is required to remove 316 tons of trash per year from the watershed, 150 tons from point sources and 166 tons from non-point sources. It is hard to say how much the county is currently removing as it does not report data specific to the Anacostia watershed but the county currently removes 3,548 tons of trash and other material per year, primarily through roadside cleanup and illegal dumping pickup conducted by DPW&T. The project team will encourage the contractors developing the implementation plan to consider using monitoring and reporting that is consistent with protocols used in the District and Montgomery County so that the reported data can be fairly compared.

IV. Recommendations & Conclusions

Each jurisdiction has struggled with unique challenges in meeting its obligations under the Anacostia River Trash TMDL, which is not surprising as the TMDL is the first one of its kind to apply across multiple jurisdictional boundaries and is still undergoing evaluation as a regulatory tool going forward.

The Anacostia Trash TMDL poses specific challenges because monitoring and reporting protocols are not standardized. Weights are difficult to measure for source reduction and prevention BMPs, not well suited to volunteer monitoring, and require formulas and assumptions to calculate trash totals among other debris collected in structural BMPs. Finally, many agencies and community groups contribute to the collection and outreach, but not all are sensitive to watershed boundaries in addition to political boundaries. Agencies need to improve their data collection so that total weights are specific to the Anacostia watershed. Additionally, Montgomery County and the District expend much effort to quantify this data, capacity that might be better used to design and implement innovative prevention and source reduction practices.

The TMDL is an innovative way to regulate trash pollution and continues to evolve. MDE is considering the jurisdictions' progress and experience in the Anacostia River watershed as it develops another trash TMDL for the Middle Branch of the Patapsco River and Baltimore Harbor. The regulating agencies should remain open to revising the TMDLs to accomplish the universal goal of reducing trash pollution in our waterways.



Clean Land, Safe Water, Healthy Lives



Trash Reduction Strategies in the District of Columbia and Montgomery and Prince George's Counties

The following tables outline the strategies put in place by the jurisdictions responsible for implementing the Anacostia Trash Total Maximum Daily Load (TMDL): the District of Columbia and Montgomery and Prince George's Counties. The information was gathered from various sources and includes strategies implemented leading up to and including 2013. The pounds removed by each strategy represent the total removed for the entire jurisdiction, not just the portion of their jurisdiction within the Anacostia Watershed.

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Montgomery County

Montgomery County BMPs	Start-up Costs	Yearly costs	pounds/yr	Notes	Sources
Structural BMPs					
6 curb extensions					2012 jurisdictional report
2 bioswales					2012 jurisdictional report
8 storm drain inlet modifications				DEP is testing and revising storm drain inlet configurations. Final design standards and guidelines based on testing results will be developed.	2012 and 2013 jurisdictional report
11 storm water management ponds		\$26,941	1,761	A contractor is hired to service ponds, including removing organic debris and trash. 1,761 pounds of trash were removed from 11 ponds on four dates.	2012 and 2013 jurisdictional report, cost from Annual Report for FY12 NPDES Municipal Separate Storm Sewer System Permit
Trash Traps				Litter survey and evaluation for in-stream trash structures in Rock Creek was completed in 2012. MWCOG surveyed over 130 miles of roads, completed 75 walks to characterize and count trash on roadsides.	2013 jurisdictional report
Fresh Creek Trash Net		\$1,000/acre of drainage unit		Little Paint Branch Proposed Projects estimated cost	Little Paint Branch Subwatershed Action Plan
End-of-Pipe netting		\$4,000/acre of drainage Unit		Little Paint Branch Proposed Projects estimated cost	Little Paint Branch Subwatershed Action Plan
Storm Drain Trash Grate		\$500/inlet		Little Paint Branch Proposed Projects estimated cost	Little Paint Branch Subwatershed Action Plan

Trash Reduction Strategies in the District of Columbia and Montgomery and Prince George's Counties

Montgomery County BMPs	Start-up Costs	Yearly costs	pounds/yr	Notes	Sources
Environmental Site Design (ESD) retrofits-private and priority neighborhoods		\$213,000,000	20,076	94 lbs/million \$	Anacostia Watershed Implementation Plan for Montgomery County
Habitat Restoration		\$1,400,000	266	188 lbs/million \$. Costs: Total "incremental Cost"- p. 43	Anacostia Watershed Implementation Plan for Montgomery County
Retrofit of Underperforming BMPs		\$1,200,000	1,144	954 lbs/million \$. Costs: Total "incremental Cost"- p. 43	Anacostia Watershed Implementation Plan for Montgomery County
Non-Structural BMPs					
Countywide Street Sweeping		\$137,622	204	1,248 miles projected to be cleaned in 2013* . Estimated \$50/curb mile. 164 lbs/million \$. Costs: Total "incremental Cost"- p. 43	2012 jurisdictional report, *2013 Residential Street Sweeping, Anacostia Watershed Implementation Plan for Montgomery County, Little Paint Branch Subwatershed Action Plan
Adopt-A-Road		\$4,000	#REF!	362 community groups participated with 146 groups reporting results for 520 cleanups.	2012 and 2013 jurisdictional report
Transit Stop Trash Management		\$477,000	877,339		2013 jurisdictional report
Alternative Community Services Litter Collection		\$36,000	174,850	Department of Corrections collected 5,060 bags of trash through this program.	2012 and 2013 jurisdictional report
DOT Highway Maintenance Depots		\$1,233	55,116	Collected 25 tons of trash in FY13 from highway maintenance departments using this budget.	2013 jurisdictional report

Trash Reduction Strategies in the District of Columbia and Montgomery and Prince George's Counties

Montgomery County BMPs	Start-up Costs	Yearly costs	pounds/yr	Notes	Sources
Regional Litter Prevention Campaign and other Education		\$18,825	23,761	Mass transit ads (80 Ride-On buses for 12 weeks), bus shelter ads (95 for 12 weeks), and radio ads (6 mo.). Costs for FY13.	2012 and 2013 jurisdictional report, Anacostia Watershed Implementation Plan for Montgomery County
Carryout Bag Law and misc. enforcement	\$1,300,000	-\$1,070,000	63,546	\$1.07 million in revenue from the 1st 2 quarters of FY12 (Projected \$1.5M). 48,882 lbs/million dollars. In FY13 59,647,725 bags were sold. By June of FY13 1,100 retailers were registered and paying the bag fee.	2012 and 2013 jurisdictional reports, Anacostia Watershed Implementation Plan for Montgomery County
Public outreach at events		\$76,690		Full time outreach staff position. Watershed Management division reached 10,226 people through 82 events. Costs for outreach staff position FY13.	2012 and 2013 jurisdictional reports
Local Watershed Groups			48,850	8 groups with the help of 1,873 volunteers	2012 jurisdictional report
Storm drain Marking Program				323 drains in FY13 and 1,200 watershed-specific storm drain markers were distributed to 6 watershed groups. 100 drains in 2012, 48 drains in 2011	2012 and 2013 jurisdictional reports
Code Enforcement: Department of Housing and Community Affairs and Department of Environmental Protection		\$705,500	500,449	3,520 trash related complaints, 437 citations, and estimated 227 tons of trash removed in FY13.	2012 and 2013 jurisdictional report

Trash Reduction Strategies in the District of Columbia and Montgomery and Prince George's Counties

Montgomery County BMPs	Start-up Costs	Yearly costs	pounds/yr	Notes	Sources
Track and Map trash hot spots in waterways.				In order to target trash control measures. Done by the Department of Environmental Protection Watershed Management Division.	2012 jurisdictional report
311- county central call center				Tracks calls related to litter on county roads. Information is conveyed to Police Force to increase surveillance of roadside hot spots.	2012 jurisdictional report
Post-TMDL Monitoring				3 cycles in the Anacostia for the Trash TMDL.	2012 jurisdictional report
Volunteer Monitoring				Surveyed 130 miles to characterize and count trash and compare with trash type and count determined through a drive by survey.	2012 jurisdictional report
Recycling Education and Investigations		\$200,000	51,654	238,837 lbs/million dollars.	Anacostia Watershed Implementation Plan for Montgomery County

District of Columbia

District of Columbia BMPs	Start-up Costs	Yearly costs	pounds/yr	Notes	Sources
Structural BMPs					
Big Belly Solar Compactor	\$3,900/unit			Philadelphia, PA - estimate \$13 million savings over 10 yrs. MOU with the University of the District of Columbia (UDC) Van Ness Campus to study effectiveness of SolarBelly for litter reduction.	2012 Jurisdictional Report; Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Trash Traps	\$111,000 for Nash Run		3,600 lbs from 2008-2011 at Nash Run	Grant for AWC to continue maintaining Nash Run trap. Two grants given to AWS and ECC to install two new traps - one will be at an MS4 outfall within River Terrace Park fringe wetland; ECC installed Aug 2013 (a series of booms connecting docs around ECC HQ at Pump House)	2013 Jurisdictional Report; Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Bandalongs	\$50,000 - \$116,000	\$44,000 - \$88,200/device	1,800-7200 per device	3 bandalongs in the Anacostia watershed cost \$460,000 including maintenance or \$153,000 per bandalong. 2 were installed and maintained for \$200,000 via a grant with two local non-profits.	2012 Jurisdictional Report; Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Custom In-Stream Capture	\$2 million	\$90,000	estimated 12,800	Cost for custom designed Trash Traps for Nash Run \$111,000 with four years of maintenance. Two additional planned for Anacostia watershed.	2012 Jurisdictional Report; Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.

Trash Reduction Strategies in the District of Columbia and Montgomery and Prince George's Counties

District of Columbia BMPs	Start-up Costs	Yearly costs	pounds/yr	Notes	Sources
Catch Basins	Budgets \$60,000/yr for components	\$345,000 (separate storm sewer system areas of the city)	6,000	Maintenance: \$50 - \$100 k/year for the last 3 years. DC water services catch basins in MS4 areas.	2012 Jurisdictional Report; Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Hickey Run large Trash BMP	\$2,000,000		10,000	Completed Fall 2011. Collects trash, sediment, oil and grease from a piped section of the Run. It is located above New York Ave. NE	2012 Jurisdictional Report
Expanding Public Recycling and Trash Receptacles				Not yet implemented, but part of DC Sustainability Plan	2012 Jurisdictional Report
Non-Structural BMPs					
Litter Prevention Campaign	\$238,000	\$24,800 for 126 schools		In 2013 they gave AFF a grant to do an expanded roll-out of the Campaign that includes evaluation and is working with Metro to install Campaign in the bus and rail systems.	2013 Jurisdictional Report; Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Bag Fee Enforcement and Re-usable Bag Distribution		\$275,000 for outreach and reusable bag distribution in 2012	60% fewer plastic bags removed during cleanups	A total of \$7 million in revenue since the bag fee was started, with \$1.6 million in 2013. Education and outreach at events, with businesses, and others. Purchased 45,000 reusable bags for distribution, displayed material from the Skip the Bag, Save the River and developed a new TV ad in 2012. Full time inspector to check compliance. Funding a large-scale research project to understand actual plastic bag consumption rates.	2013 Jurisdictional Report. Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.

Trash Reduction Strategies in the District of Columbia and Montgomery and Prince George's Counties

District of Columbia BMPs	Start-up Costs	Yearly costs	pounds/yr	Notes	Sources
Skimmer Boats	\$500,000 - \$750,000/boat	\$450,000	870,000		Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Street Sweeping	New plan- \$250,000. Enhanced sweeping plan development: \$1,000,000	\$450,000		Trash hotspots receive two additional days a month of weekly street sweeping in 2013. DDOE has been working since 2011 to enhance their program.	2012 and 2013 Jurisdictional Report; Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Vacuum Screening		Several thousand dollars	456,000		Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Cleanups- Data for DC		\$28,000 coordination , \$232,200 in-kind volunteer time, \$18/hour	Potomac River Watershed Cleanup - 104,000 lbs in 2011		Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.
Litter Enforcement				Enabling laws piloted in 4th district and expanded into the 6th district in 2012, had 103 Notice of Violations. It allows a pedestrian litter fine of \$75 and a vehicle litter fine of \$100. Vehicular fine is now District wide.	2012 and 2013 Jurisdictional Report
Cleanup Events				Included Annual Potomac River Watershed Cleanup, Anacostia Trash Cleanup, and All Hands Day events. DDOE hosted several sites.	2012 Jurisdictional Report

Trash Reduction Strategies in the District of Columbia and Montgomery and Prince George's Counties

District of Columbia BMPs	Start-up Costs	Yearly costs	pounds/yr	Notes	Sources
Identify Trash Hotspots				Part of Trash TMDL. Implementing trash BMPs is a priority in six sewersheds that are of high priority. Includes Anacostia Trash Reduction Strategy that targets certain streets. Influenced street sweeping levels.	2012 and 2013 Jurisdictional Report
Trash and Watershed Education		\$251,000		May include Meaningful Watershed Education Experiences (MWEE) program which works with 480 students (3rd-6th grade) and Trash Free School Project at entire school.	2012 Jurisdictional Report

Prince George's County

Prince George's County BMPs	Start-up Costs	Yearly costs	pounds/ yr	Notes	Sources
Structural BMPs					
Trash Receptacle Installation Program				At County bus stops ("The Bus"). 150 locations. Serviced with volunteers and county crew work forces at least once a week.	2012 jurisdictional report
2 Fresh Creek Technologies Netting Trash Trap® System			>20,000	Each net captures to 11 cubic feet of trash.	2012 jurisdictional report; Anacostia Trash TMDL-Related Baseline Conditions Monitoring (June 2008 - July 2009)
Low Impact Development (LID)				Incorporated into the Green Infrastructure Functional Master Plan	Countywide Green Infrastructure Functional Master Plan
Bioretention				Incorporated into the Green Infrastructure Functional Master Plan	Countywide Green Infrastructure Functional Master Plan
Storm Drain Inlet Grates				At an apartment complex.	Countywide Green Infrastructure Functional Master Plan
Non-Structural BMPs					
Comprehensive Community Cleanups			58,000	County conducts 21 comprehensive community cleanups annually through their "Cleanup-Greenup Prince George's," 15 in the spring and 5 in the fall. Removed 29 tons of trash in FY13 with the help of 3,500 volunteers.	2013 Jurisdictional report
Roadside litter and illegal dumping pickup (crews)		\$3,337,000	6,984,244	Removed 3,168 tons of roadside litter and illegal dumping in FY 13	2013 Jurisdictional report
Street Sweeping		\$264,717			2013 Jurisdictional report

Trash Reduction Strategies in the District of Columbia and Montgomery and Prince George's Counties

Prince George's County BMPs	Start-up Costs	Yearly costs	pounds/ yr	Notes	Sources
River cleanups (Bladensburg Waterfront Park)				12 cleanups from summer 2011 to Fall 2012. They also conduct life science programs with a trash-focus.	2012 jurisdictional report
Adopt-A-Road				88 volunteer groups coordinate roadway cleanups in FY13. Provided grabbers, safety vests, gloves and trash bags.	2012 and 2013 jurisdictional reports
Trash Hot Spots				These spots were identified in 2006 and are monitored, some using video surveillance, and serviced for trash removal weekly. Most have fines for illegal dumping violations posted.	2012 and 2013 jurisdictional reports
SMART (Strategic Multi-Agency Response Team)				Interagency working group that meets weekly and focuses on litter, illegal dumping, and other unusual trash issues.	2012 jurisdictional report
Volunteer's Neighborhood Cleanup Program				Through the DER, civic and homeowners associations, schools, churches and individuals encouraged to adopt hot spots and common areas for regular cleanup. The County supplies gloves, grabbers, trash bags, and dumpsters.	2012 jurisdictional report
Livable Communities Initiative Blight Control Program			34,080	>1,400 volunteers	US EPA. Draft Final Anacostia River Watershed Trash TMDL. August 2010
Storm Drain Stenciling				76 drains stenciled in 2005 and in older communities.	US EPA. Draft Final Anacostia River Watershed Trash TMDL. August 2010

Bibliography

Title	Link
2013 and 2012 Jurisdictional Reports	http://fergusonfoundation.org/trash-free-potomac-watershed-initiative/jurisdictional-reports/
2013 Residential Street Sweeping	http://www.montgomerycountymd.gov/DOT-Highway/streetsweep/index.html
Anacostia Trash TMDL-Related Baseline Conditions Monitoring (June 2008 - July 2009)	http://www.anacostia.net/restoration/Reports_and_Data/Trash_report_2010.pdf
Anacostia Watershed Implementation Plan for Montgomery County	http://www6.montgomerycountymd.gov/content/dep/downloads/water/AnacostiaRiverWIP_FINAL.pdf
Annual Report for FY12 NPDES Municipal Separate Storm Sewer System Permit	http://www6.montgomerycountymd.gov/content/dep/downloads/npdes/FY12_MS4_Annual_Report_Final_3_15_13.pdf
Case Study on Litter Management for Drainage Systems in Washington, DC, U.S.A.	http://fergusonfoundation.org/wp-content/uploads/2012/12/DC-case-study-for-World_Bank_3-10-12_FINAL.pdf
Countywide Green Infrastructure Functional Master Plan	http://www.pgplanning.org/Resources/Publications/Green_Infrastructure_Publication.htm
Little Paint Branch Subwatershed Action Plan	http://www.anacostia.net/Restoration_Plan/download/ActionPlans/Little_Paint_SWAP_FINAL.pdf
US EPA. Draft Final Anacostia River Watershed Trash TMDL. August 2010	http://green.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/Final_Anacostia_Trash_TMDL.pdf

EXHIBIT B

Anacostia Watershed Society,
Comments on Draft Implementation Plan for the
Anacostia River Watershed Trash
Total Maximum Daily Load in
Prince George's County
(Dec. 24, 2014)



together with:

**Friends of Lower Beaverdam Creek ♦ Friends of Quincy Run Watershed ♦
Natural Resources Defense Council ♦ Neighbors of the Northwest Branch**

December 24, 2014

Mr. Ross Farahifar
Engineering Services Section
Sustainable Initiatives Division
Department of the Environment
1801 McCormick Drive, Suite 500
Largo, MD 20774

Submitted via email to rfarahifar@co.pg.md.us

Re: Draft Implementation Plan for the Anacostia River Watershed Trash Total
Maximum Daily Load in Prince George's County

Dear Mr. Farahifar:

Thank you for the opportunity to comment on the draft Implementation Plan for the Anacostia River Watershed Trash Total Maximum Daily Load (draft Plan) in Prince George's County (the County). The Anacostia Watershed Society (AWS) is joined in submitting these comments by the Friends of Lower Beaverdam Creek, Friends of Quincy Run Watershed, Natural Resources Defense Council, and Neighbors of the Northwest Branch. We appreciate the efforts undertaken by the Department of the Environment (DoE) to collaborate with stakeholders and residents to improve the County's portion of the Anacostia River and its tributaries by reducing the amount of trash entering these waterways per the County's MS4 permit.

Substantially reducing trash in the Anacostia River is essential to the goal of the AWS for the river to be fishable and swimmable by 2025. We applaud recent efforts of the County to establish innovative and unprecedented programs to meet pressing environmental and community needs in the County and for the river. We are committed to working with DoE and the County to make its programs second to none in the state and region, as the Department has announced. We offer these comments in that spirit.

Clean the Water, Recover the Shores, Honor the Heritage

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While the release of this draft Plan is a major milestone for addressing the issue of trash in the Anacostia watershed and we commend the County for committing to reducing trash loads throughout the county (not just the Anacostia watershed portion), certain aspects of the draft Plan are deficient. The selected projects for meeting MS4 permit requirements rely on existing in-stream cleanup programs as well as outreach programs that indirectly generate results, making it difficult to measure actual trash reduction. Education and outreach are undoubtedly important in curbing the issue of littering and trash pollution; however, the environmental community and initiatives from organizations such as Keep America Beautiful and the County's long-established counterpart have been educating the general public for over 40 years and we still see a significant amount of trash in the rivers and oceans and in our communities. It is time to ramp up physical removal of trash, source reduction, and enforcement efforts to bridge the gap of those behaviors and attitudes that cannot be swayed using even the best education and anti-littering campaigns. Contained herein for your consideration are our concerns and recommendations for the draft Plan organized in these six categories: 1) Education and Outreach Programs; 2) Stream Cleanups 3) Structural Practices and Environmental Site Design; 4) Illegal Dumping; 5) Enforcement and Source Reduction; and 6) Overall Methods and Rationale.

1) Education and Outreach Programs

Expanding collaboration with the Alice Ferguson Foundation (AFF) on its Trash Free programming is an excellent opportunity for the County to engage youth and communities. There is much that can be learned from these and the environmental education programs of AWS, the Prince George's County Public Schools, and other programs, and we hope that the County will incorporate findings into additional planned public education activities. For example, there are two schools in the County's portion of the Anacostia Watershed that have been a part of the Trash Free Schools Program since 2013: Cesar Chavez Elementary School (District 3) and Walker Mill Middle School (District 6). While values from publications in other jurisdictions were used to estimate the effectiveness of education programs for this draft Plan, it seems that we could have learned from our own school systems and perhaps compared effectiveness from these schools with others to try to achieve a better estimate. If the County is to be credited trash reduction from educational programs, we recommend that going forward the County evaluate all of these types of activities to obtain a more relatable estimate for effectiveness. This is of particular concern since the 12% estimated total effectiveness of reducing trash through education programs is based on data from the 2001 Watershed Treatment Model (WTM) referenced indirectly for this Plan using Montgomery County's Anacostia Watershed Implementation Plan; WTM data was updated in 2013. We recommend the County review updated information for any changes to the Total Program Efficiency and that the County work closely with AFF to determine a more realistic efficiency and measurement of success than what is stated on page 18 (referenced again on pages 19 (Table 2.6), 32 (Table 3.1), 46, and 57 (Table 4.1)).

Storm drain stenciling, a practice we have used for most of our 25 years of work, is another way to inform the public about polluted runoff. A couple of things should be considered in determining goals for stenciling storm drains. The number of storm drains in the County were estimated based on the number of storm drains reported in Baltimore City. It is unclear if these two localities can be considered similar in this respect. We would expect that the County could account for its storm drains. The County should use the actual number of storm drains in the system to estimate trash reduction credit for stenciling storm drains. Accounting for the number

of storm drains that have already been stenciled should also be factored into this estimate, as well as maintaining previously stenciled sites that are contributing benefits already in the baseline calculation.

The bottom line is that program-driven trash reduction claims of this magnitude require testing and verification. Until we have local data we request using very conservative estimates for pounds reduced through these programs.

2) Stream Cleanups

Prince George's County Comprehensive Community Cleanup Program is a great way to engage residents and groups in cleanup activities and environmental stewardship. Currently communities are scheduled approximately every four years; expanding this program would reduce trash loading. Perhaps the County could expand its capacity so that each community is scheduled every year or assist communities to take ownership of their cleanup activities and conduct some of them year round.

We agree that in-stream trash cleanup programs are one effective way of removing trash from the watershed (as mentioned on page 42) but this is an after-the-fact effort. Trash should not be discharged to the Anacostia River, particularly since it becomes much more expensive, difficult, and cumbersome to remove from the water. Thus, trash cleanup programs in streams should be considered back-up programs to those which keep trash from them in the first place. The County should actively engage in the in-stream cleanup efforts so that the stream cleanup events become sustainable. By doing so, it will help to ensure that watershed and other groups have resources and materials needed to orchestrate cleanup events that the County plans to use to meet TMDL requirements.

Additionally, while increasing the number of trash cleanups would help reduce trash, the County should consider making these an educational experience by recruiting community members and local businesses in the surrounding areas to get involved. The people cleaning up the trash should not always be those who have been involved in previous trash cleanups; we need to engage new people to expand capacity and for educational purposes. Additional trash reductions from these cleanups that are counted toward the MS4 permit requirements needs to be calculated and tracked appropriately.

Dedicated dumpsters and recycling bins at points where groups conducting trash cleanups could routinely take trash for the TMDL count would be a huge help to these groups and could potentially spur other groups to get involved. Perhaps a fund could also be set up to support cleanups financially. The dumpsters and bins could be under a coded lock so that not just anyone could unload trash. The County should work with groups to determine needs and container placements.

We are disappointed that there is no evaluation of new methods of tackling trash problems presented here and we strongly encourage the County to incorporate practices that prevent litter from entering storm drains; for example, installing inlet screens (with retractable configurations

that prevent excess ponding or flooding) at suitable locations as explained in Healthy Harbor Baltimore (2011).¹

Many assumptions were made in calculating trash reduction amounts from cleanup events. We understand and recognize that these values are best estimates; however there are far too many assumptions being made and the County should strive for accuracy when calculating trash reduction in the future as counting toward the TMDL and MS4. For example, 15 cleanups reported on the survey did not have quantities of trash collected so a median value was computed for small community events of 1,600 lbs per event; this value was assigned to each of the 15 events. Also from survey results, cleanups reported were divided into in-stream and non-in-stream cleanups. How was this distinction made, was it assumed based on cleanup name? Survey participants were not asked to split up cleanups by type on the survey. Cleanups organized by AWS and other groups occur on land and in tributaries. Some events incorporate both methods while others are one or the other. It is not clear how the distinction was made resulting in in-stream cleanups being counted toward the MS4 requirements; some of this trash could have been on land and not necessarily ever part of the MS4 system. The District Department of the Environment (DDOE) in DC can account for the trash picked up by skimmer boats, as mentioned in the draft Plan as comparison, because these collections absolutely occur in the river (downstream of MS4 areas). We caution the County to make sure the information they gather on future cleanups is applicable to the type of tracking being used for meeting TMDL requirements.

Weight estimates for trash collected at cleanup events are based on lb/bag; the bags are not individually weighed. Many agencies and organizations use 25 lbs/per bag estimates when calculating total amount of trash collected and there has been speculation about whether or not this is an accurate estimate per bag of trash. Even if the bags were weighed, there would need to be some measure to account for non-trash items (e.g., mud, water, organic debris) in the bag as well since many volunteers collecting the trash do not empty the contents of or crush containers before bagging them. The other assumption made in counting the 140,475 lbs of trash part of the TMDL is that these cleanups will have to continue; there are no assurances these cleanups will continue since the County is relying on information gathered by external groups.

3) Structural Practices and Environmental Site Design

Structural and environmental site design (ESD) practices could be considered more favorably for implementing trash reduction efforts to capture trash before entering streams and the Anacostia River. We recommend using the existing BMPs such as stormwater management ponds and modifying them to capture floatable trash. Then, to stop trash from entering the larger tributaries and main stem of the Anacostia River, in-stream trash traps should be installed where heavy trash flows from rain events still exist. The County should also recognize the effectiveness of ESD or Low Impact Development (LID) as trash reduction measures in a long term plan. LID/ESD will reduce the amount of stormwater runoff that carries trash to the river. By promoting LID/ESD practices, the trash load to the river could be significantly reduced. Of course, these installations need to be maintained, but it is much easier to pick up trash on land than to screen it out of flowing streams. Organizations such as ours are also willing and able to work with the County to enlist neighborhood volunteers to remove trash from these installations.

¹ "Healthy Harbor Baltimore Chapter 4: Trash Solutions" at 4-7 (2011), *available at* http://www.healthyharborbaltimore.org/uploads/file/healthy-harbor-plan/04_Chapter_4_Trash.pdf

Concerns regarding the effectiveness of trash traps and Bandalong litter traps were briefly discussed in the draft Plan. We highly recommend that the County reconsider ruling out the use of trash traps entirely because they can be very effective under the right conditions. The cost estimate for structural BMPs is misleading because it is calculated only for Bandalongs. AWS has a trash trap in Nash Run located in the District of Columbia that collects about 5,000 lbs/yr at the cost of \$30,000. Thus the cost estimate is about \$6 per pound while Bandalong costs \$29.99 per pound. Another comparison worth considering is school programs and trash traps. It was estimated that if all of the schools in the watershed took part in the Trash Free Program approximately 5,690 lbs/yr of trash could be prevented (Table 3.1). According to this calculation, the amount of trash to be reduced by school education is very small compared to the efficiency of the Nash Run trash trap in the District of Columbia which removes about 5,000 lbs/yr from a drainage area of 1 square mile. Rather than giving up on trash traps, sites should be carefully studied to match the type of trap to site conditions. Approaches directed to removing floatable trash may prove more feasible and effective at many sites. AWS and others are having great success with this approach working with DC's DDOE to intercept trash within its jurisdiction. Adaptation and continuous improvement should be important guiding principles for the use of trash traps. We are encouraged to see that the County has included information regarding the trash screens already part of the many pumping stations along the Anacostia. These are a ready source of information and experience that should continue to inform County practice.

Three sites we highly recommend evaluating for trash trap installations are at or near the mouths of Dueling Creek, Quincy Manor Run, and Lower Beaverdam Creek. For ease of access and maintenance the Lower Beaverdam Creek trap could be immediately adjacent to WSSC's station west of Kenilworth Avenue near the creek's mouth.

Another practice of value if done strategically is street sweeping, discussed on page 22. The focus of street sweeping should be in areas identified as trash "hotspots," not as a service provided on every County road. Because street sweeping can also be an effective strategy to prevent sediment (and the pollutants that bind to them) from washing into the MS4 system, it appears to us that some – but not all – of the cost for street sweepers and their operation could legitimately be charged to the County's Clean Water Fund. It should be easy to track the nature and amount of trash that is collected in this way, as well as the amount of sediment prevented from entering our streams (which is covered by separate important regulations and strategies).

4) Illegal Dumping

Illegal dumping is a concern to communities throughout the County and especially in many of our Anacostia watershed communities. Preventing this kind of dumping and promptly cleaning up these sites is very important. While it is true that strategically placed "No Dumping" signs can be a deterrent to illegal dumping, the effectiveness of signage should not be overstated. We also question the degree to which the bulk of these items make their way into the tributaries and therefore the degree to which their removal or prevention should be included in calculations for nonpoint load reductions for river trash. From our observation, it is highly unlikely that the bulky material dumped on land will enter the system and streams. Large items dumped on land should not count toward the TMDL load unless dumped directly into or immediately adjacent to a stream. Furthermore, assuming the average weight of trash for cleanup events is similar to that found at dumping sites (p. 33) is likely inaccurate; the County should consider using information from illegal dumping sites as an estimate instead.

The use of a small study conducted by a Task Force in Texas is fine to use for roughly estimating the effectiveness of installing no dumping signs at illegal dumping sites, but we strongly encourage the County to reevaluate this estimate if being implemented to address TMDL requirements. The draft Plan neglects to state that based on this study the signs are only effective if they are strategically placed (placing signs at the point of entry, along the way, and at the dumping location) and if a Spanish translation is provided. It is also worth noting that the signs from the study read “You are being monitored” which is probably the biggest reason these signs are effective at reducing illegal dumping incidents. The percent effectiveness from this study was also incorrectly stated; the draft Plan uses 70%, but the report clearly states 68% (yes, 2% matters). We recommend that the County reevaluate this section because as it is, using 70% as effectiveness for signage is not accurate. A study within the County should be conducted to provide a much better estimate than randomly selecting a small study conducted in Texas that provides no insight into background information or methodology used. Demographics, attitudes, and population densities are just a few differences that could change this estimate. As a result, the 61,600 lb reduction calculated is not reliable and cannot be counted toward reducing the load.

The County had an extensive program under the previous county administration to address the issue of illegal dumping, working with the Strategic Multi-agency Response Team (S.M.A.R.T.).² How has that practice been considered and evaluated to inform this section of the Plan? We still see dumping near existing signs and wonder to what degree they have been a deterrent and question the success of any one of these kinds of initiatives in isolation. It will require a coordinated, substantial, and ongoing overall campaign and strategy driven by the highest county leadership to effect the change projected by the draft Plan.

5) Enforcement and Source Reduction

We do not doubt that monitoring illegal dumping sites, including the use of cameras, is a valuable tool to deter dumping and to enforce the law. However, assumptions used to estimate trash reduction from camera installations are not clearly defined or appropriately applied (p. 54). Based on the calculated reduction, the assumption is that 41 convictions of illegal dumping in a year (based on Baltimore City’s 26 cameras installed at illegal dumping locations in 2013) will result in the elimination of 65,600 lbs/yr of trash. How is this logical? If the dumping already occurred, particularly trash that has been dumped and partially carried away by a stream’s current, camera footage would not be reviewed until after the crime is committed. Is the assumption that because one was convicted they will never illegally dump trash again? If so, the estimate is inaccurate because we have no way of knowing whether or not those convicted of illegal dumping will do it again (or that they won’t just decide to do it in other locations not monitored by cameras). Or is the assumption that the cameras will act as more of a deterrent much like the signs do (p. 44)? If this is the case, using values from the Plan, the estimated reduction in trash would be:

26 (number of additional sites; not the same 55 already accounted for with signage) X
1,600 lbs/yr (estimated trash at each location) X .68 (rate of effectiveness of signs based on
the Task Force study in Texas mentioned on p. 32) = 28,288 lbs/yr

² Alice Ferguson Foundation, “Trash Free Potomac Watershed Initiative: Jurisdictional Reports 2012” at p. 17 (2013), available at <http://fergusonfoundation.org/wp-content/uploads/2013/06/2012-Jurisdictional-Report-for-the-website-2.19.13-final.pdf>

The MS4 portion is 43% of total trash which would equate to 12,163 lbs/yr of trash.

It is mentioned in the draft Plan (p. 34) that Montgomery County and the District of Columbia are the only two localities in the U.S. that the County is aware of with a fee on both plastic and paper bags. Other areas with this specific fee system are a few municipalities in Colorado (Boulder and Breckenridge) and Brownsville, Texas. There are many ordinances across the country and worldwide with laws managing use and sale of plastic and/or paper bags; the majority of those have banned plastic bags and a few have fees on paper bags.^{3,4} We have and continue to support plastic/paper bag legislation in Prince George's County and the entire state of Maryland. A plastic and paper bag fee would help prevent litter from clogging our storm drains and streams as well as generate revenue for the County to implement other trash reduction measures. We recommend that the County outright ban plastic bags and impose a fee on paper bags as the most effective way to keep bags out of our waterways and encourage people to use reusable bags. If using the potential 50,330 lbs/yr reduction in plastic bags as a result of a bag law, the County needs to account for only that portion of the MS4 area if counting it toward meeting permit requirements.

Due to the extensive and well documented volume of beverage containers in the river,⁵ we also support Bottle/Can Beverage Container Deposit Programs and encourage DoE to work with elected officials in the County, state and surrounding jurisdictions to develop and implement a beverage container deposit program appropriate and effective for our county and region. If such a program were to be enacted, we would most certainly see a reduction in the number of littered beverage containers due to an increase in recycling, as shown in a study conducted on aluminum containers across the world.⁶ Such a program to prevent this trash would reduce a huge portion of the trash stream at no cost to the County! If using the potential 69,400 lb/yr reduction in bottles as a result of a bottle law, the County needs to account for only that portion of the Phase I MS4 area if counting it toward meeting MS4 permit requirements. Michigan, currently holding the highest recycling rate in the nation and one of 11 states with a beverage container deposit law, since 1990, has seen on average a redemption rate of approximately 97%.⁷ A deposit bill such as this is one of the best solutions for not only removing bottle and can beverage containers from the Anacostia, but it will also increase the recycling rate as well as awareness of general recycling practices.

Similarly, a ban on expanded polystyrene foam (commonly known as Styrofoam) would also help reduce litter entering our streams and should be considered by the County. The District of Columbia enacted a ban on Styrofoam in July 2014 that will take effect in 2016.⁸ Montgomery

³ Surfrider Foundation, Plastic Bag Bans and Fees (Nov. 13, 2013), *available at* <http://www.surfrider.org/pages/plastic-bag-bans-fees>

⁴ Earth Policy Institute, "The Downfall of the Plastic Bag: A Global Picture" (May 1, 2014), *available at* http://www.earth-policy.org/plan_b_updates/2014/update123

⁵ Anacostia Watershed Society, "Anacostia Watershed Trash Reduction Plan" at vi and xvi (2008), *available at* http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/2009.01.29_Trash_Report_1.pdf

⁶ "The Role of the Consumer in Reducing Primary Aluminum Demand" at p. 18-21 (Oct. 15, 2003), *available at* <http://www.container-recycling.org/assets/pdfs/aluminum/Aluminum-RoleofConsumer.pdf>

⁷ "Michigan Bottle Deposit Law, Frequently Asked Questions" (Oct. 7, 2013), *available at* http://www.michigan.gov/documents/deq/dnre-whmd-sw-mibottledepositlawFAQ_318782_7.pdf

⁸ District Department of the Environment, "Mayor Gray Signs Bill Banning Styrofoam Use in District" (July 29, 2014), *available at* <http://green.dc.gov/release/mayor-gray-signs-bill-banning-styrofoam-use-district>

County followed suit and a ban is being considered by the county council in 2015 for implementation in 2016 as well.⁹ Styrofoam and products of similar materials are one of the worst, most persistent trash components in the Anacostia and other waterways and warrant special attention in this Plan. Materials made of expanded polystyrene foam never completely breakdown in the environment, but instead deteriorate into tiny pieces which litter the water and shores of our river. The foam pieces we are able to capture from the Nash Run trash trap in DC comprises more than 30% of the trash by volume at times while the average amount removed monthly over the past four years is 21% by volume.¹⁰ Other localities recognize the problem with expanded polystyrene foam and have banned use and sale of these products.¹¹

6) Overall Methods and Rationale

Methods used to determine program efficiencies (Education Campaign In Schools, Training and Enforcement, Community Outreach Campaign, Virtual Outreach Campaign, Signage, and Storm Drain Stenciling) listed in Table 4.1 needs to be better explained rather than simply listing several sources (page numbers should at least be listed in the references section). It is difficult to determine if each of the values listed for program awareness, program effectiveness, and willingness to participate are applicable to these programs without a more detailed explanation of the process and reasoning for using the sources listed. What is the rationale for attributing 100% of total trash to MS4 in Table 5-1 (and implied throughout the plan when various programs were discussed) for the same programs mentioned above? Potential trash generated from these sources could be considered nonpoint source.

For trash removal benchmarks listed in Table 5-2 should be clearly stated as being attributed to MS4 loading and more importantly it is essential that all data collected from activities implemented are clearly tracked as being point source (with those divided up exactly the way they are divided up in the TMDL loadings referenced on p. 2) or nonpoint source because only Phase I areas are applicable to meeting MS4 requirements.

We bring up points regarding monitoring and verification of results repeatedly in these comments because they go to the heart of good government. Transparency and verification are critical to building public confidence and support, especially for the acceptance of the need for new programs such as bag fees and Styrofoam bans or bottle deposit programs. Avoiding skepticism over the effectiveness of existing efforts is very important.

There is no discussion in the plan about how funds will be raised to support the trash reduction programs. Though this is not a requirement of the Plan, incorporating this information would help accelerate implementation. A plastic bag fee program or other types of programs should be discussed as funding sources. More details about the methods used to monitor trash reductions

⁹ CB-41-2014 (Sept. 9, 2014), *available at*

http://www.montgomerycountymd.gov/COUNCIL/Resources/Files/bill/2014/Packets/20140909_4B.pdf

¹⁰ See *chart in* Greater Greater Washington op-ed, "The plastics industry says trash is not a problem in the Anacostia River. DC councilmembers disagree." (July 11, 2014), *available at*

<http://greatergreaterwashington.org/post/23547/the-plastics-industry-says-trash-is-not-a-problem-in-the-anacostia-river-dc-councilmembers-disagree/>

¹¹ Groundswell, "MAP: Which Cities Have Banned Plastic Foam?" (July 15, 2014), *available at*

<http://www.groundswell.org/map-which-cities-have-banned-plastic-foam/>

being conducted by the Metropolitan Washington Council of Governments and others for the County also need to be described more fully in the Plan in order to ensure proper assessment of program success. Additional monitoring and program evaluation commitments should also be included. It is one thing to estimate the benefits of a program practice based upon a literature search. To claim those results requires, to us, program evaluations and credible, verifiable monitoring.

Many of our stream valleys and stream parks in the County are under the jurisdiction of Maryland-National Capital Park and Planning Commission (M-NCPPC). We cannot fully achieve the goal of a trash free river without the full cooperation and collaboration of M-NCPPC. How they can and will be included in the Plan (beyond stating that the County should strengthen and nurture relationships) and the cleanup effort is important and essential. The Plan should discuss the extent to which there are barriers or impediments to obtaining their cooperation, if any, so that policy makers can consider actions to address this.

Thank you for the opportunity to submit these comments on the draft Plan. We are encouraged to see DoE's commitment in resolving the trash pollution problem of the Anacostia River in the MS4 areas of the County. If our comments are incorporated into this Plan, we believe the County will strengthen its efforts and be well on its way to achieving the trash TMDL goals. We look forward to continuing to work with you to ensure the restoration of the Anacostia River and its tributaries for the betterment of human and environmental health and the well-being and economic sustainability of our communities.

Sincerely,



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Jon Capacasa, U.S. Environmental Protection Agency Region III

EXHIBIT C

Anacostia Riverkeeper,
Volunteer Clean-Up Event Data

Date	Ppl	Hrs	Vol Hrs	Location	Litter (lbs)
4/14/2012	5	4	20	Poplar Point	840
4/16/2012	16	3	48	Kenilworth Aquatic Gardens	20
5/25/2012	60	0.5	30	Aquatic Resource Education Center	120
6/2/2012	15	3	45	Anacostia Park Skating Rink	200
6/22/2012	13	0.5	6.5	Aquatic Resource Education Center	80
7/6/2012	19	0.5	9.5	Aquatic Resource Education Center	80
8/10/2012	15	4	60	Kenilworth Aquatic Gardens	100
9/20/2012	60	0.5	30	Aquatic Resource Education Center	80
2/2/2013	110	2	220	Kenilworth Aquatic Gardens	1400
3/21/2013	230	2	460	Lower Beaverdam Creek	5400
4/13/2013	29	3.5	101.5	Kenilworth Aquatic Gardens	160
4/14/2013	11	3	33	RFK/Anacostia River Walk	1040
4/20/2013	30	3	90	Diamond Teague Park wetland	1440
4/20/2013	25	2	50	Brightwood Park	330
9/20/2013	80	2	160	Long Branch	3000
11/8/2013	28	2	56	Anacostia Park	1400
3/20/2014	160	2	320	Lower Beaverdam Creek	9000
4/5/2014	30	2	60	Poplar Point	1770
4/5/2014	6	2	12	Diamond Teague Park	300
4/26/2014	20	2	40	Brightwood Park	600
7/11/2014	30	2	60	Diamond Teague Park	900
8/5/2015	10	2	20	Anacostia River Walk / Historic Boathouses	600
9/20/2014	80	3	240	Kenilworth Park	2061
10/11/2014	10	2	20	Anacostia Park	105
11/8/2014	24	2	48	Diamond Teague Park	145
	1116		2239.5		31171