
MARYLAND ENVIRONMENTAL SITE DESIGN SURVEY - 2013

COUNTY RESPONSES

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SUMMARY

Six years ago, Maryland Governor Martin O'Malley signed the *Stormwater Management Act of 2007*.¹ The Act required the use of an extremely promising approach to land development known as *Environmental Site Design* (ESD).² Unlike the prior approach, ESD required that consideration of sensitive environmental resources and stormwater management facilities occur at the beginning of site design. ESD also required the use of practices more effective in protecting the suitability of our waters for childhood play, adult recreation, consumption and aquatic ecosystems. In 2009, the Maryland Department of the Environment (MDE) added a new Chapter 5, to the *Maryland Stormwater Design Manual*, which set forth how ESD was to be applied.³ In May, 2010 the new ESD regulations took effect.

In late 2010, Community & Environmental Defense Services (CEDS) conducted a survey of local stormwater review officials to learn how well ESD was working and how it could be improved. This survey was repeated in late 2013, with the following results:

- Of the jurisdictions (23 counties and Baltimore City) asked to participate in the 2013 survey, 14 responded;
- 91% of the jurisdictions feel the overall benefits of ESD are significantly greater when compared to the pre-ESD approach to stormwater management;
- In 2010, 88% of the jurisdictions had found that project review times were significantly greater with ESD when compared to the prior approach;
- In 2013, only 42% still found a significant difference in review times;
- The number of practices per site has tripled with ESD, while the number of practices in each jurisdiction is anticipated to quadruple in ten years;
- To ensure that this increased number of practices are well maintained, inspection staffing needs to increase an average of 62%;
- In late 2010, 492 ESD waivers had been issued, which increased to 556 by 2013; and
- 67% of the waivers were issued by a single jurisdiction, which was 25 times the number issued on average by the other jurisdictions.

¹ See: <http://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/programs/waterprograms/sedimentandstormwater/swm2007.aspx>

² See: <http://www.ceds.org/esd.html>

³ See: http://mde.maryland.gov/programs/Water/StormwaterManagementProgram/MarylandStormwaterDesignManual/Pages/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.aspx

In the body of this report you will find many important suggestions from the review officials about how we can gain more of the benefits offered by ESD and fewer of the headaches. CEDS calls upon watershed organizations and kindred groups to actively support their local officials in their quest to implement these improvements.

INTRODUCTION

This survey of local stormwater review officials is an expanded version of one conducted in 2010. In 2010, Community & Environmental Defense Services (CEDS) conducted workshops throughout Maryland on the new Environmental Site Design (ESD) requirements. A wide range of people attended the workshops, including federal, state, county and municipal officials. A number of these officials expressed concern with ESD.

CEDS views ESD as critical to gaining the benefits of growth but without the excessive aquatic resource impacts seen in the past. CEDS posted a brief survey online in hopes of compiling the views of local officials on the pros and cons of ESD. It was our hope that the survey results would help in some small way to further the discussions of how to resolve issues which add unnecessarily to project cost and review time while maximizing the aquatic resource benefits of ESD. A similar survey has been conducted among engineers and other professional who offer ESD consulting services. An expanded version of the survey was sent to local officials in 2013

SURVEY METHOD

A listing was compiled of officials in the 23 Maryland counties and Baltimore City who are responsible for the review of ESD plans. We asked these 24 officials to take a brief, 13-question survey posted at: <https://www.surveymonkey.com/s/ESD-CountySurvey>. In 2010, the survey consisted of five questions. The 2013 survey form will be found at the end of this report.

RESULTS

As shown in Table 1, 17 ESD review officials responded to the survey in 2010 and 14 in 2013. The two asterisks in Table 1 denote that officials responded but did not complete the survey. In one response the official said ESD reviews are handled at the municipal level and not by the county. The other official indicated they lacked a sufficient number of ESD projects to complete the survey. This same County had issued 25 times more ESD waivers when compared to the average for all other counties.

Table 1: Jurisdictions Responding To ESD Survey

| County & City Contacted | Responded To Survey Request | |
|-------------------------|-----------------------------|-----------|
| | 2010 | 2013 |
| Allegany County | | 1 |
| Anne Arundel County | 1 | 1 |
| Baltimore City | | |
| Baltimore County | | * |
| Calvert County | 1 | |
| Caroline County | | 1 |
| Carroll County | 1 | 1 |
| Cecil County | 1 | 1 |
| Charles County | 1 | 1 |
| Dorchester County | 1 | |
| Frederick County | 1 | |
| Garrett County | * | |
| Harford County | 1 | 1 |
| Howard County | 1 | |
| Kent County | 1 | 1 |
| Montgomery County | 1 | 1 |
| Prince George's County | | 1 |
| Queen Anne's County | 1 | |
| Saint Mary's County | 1 | 1 |
| Somerset County | 1 | 1 |
| Talbot County | | |
| Washington County | | |
| Wicomico County | 1 | 1 |
| Worcester County | 1 | |
| Total | 16 | 13 |

* Jurisdiction responded that they lacked sufficient information to complete the survey.

Following is a summary of the responses provided to each of the thirteen questions. Where the same question was asked in 2010 and 2013, a comparison of responses is presented.

The full (verbatim) responses begin on page 10 of this report.

2. Have you seen a significant difference in review times with ESD plans when compared to those designed in accordance to the original 2000 Maryland Stormwater Design Manual?

In 2013, 42% of the ESD review officials said yes compared to 88% in 2010.

Those noting additional review time in 2013 cited two factors. First, the three-step review process required by ESD. The ESD step requiring a detailed assessment of existing environmental resources doesn't seem to make much sense on redevelopment sites as opposed to "green" sites. Second, the large number of BMPs along with much smaller (and more numerous) drainage areas increases review times.

3. What is the greatest frustration you've experienced thus far with ESD?

In **2010**, all review officials responded to this question. The responses were grouped into the following categories: Insufficient Training-Guidance from MDE (5); Educating Applicants (5); Applicant Resistance (3); Rural Application of ESD (2); No Frustrations (2); and ESD Defects (1).

In **2013**, most review officials responded to this question. The responses were grouped into the following categories: Lack of flexibility (1); Too cumbersome to review (1); Insufficient time and funds to train (2); Educating Applicants (1); Applicant Resistance (2); Understanding the complexities of ESD (1); Educating property owners (1); Rural Application of ESD (1); and No Frustrations (1).

4. What do you see as the greatest benefits of ESD?

In **2010**, all 17 officials responded to this question. The responses to this question were grouped into the following categories: Improved Environmental Quality (9); Planning for Stormwater at Start of Development Process (3); Fewer Ponds (4); Reduced Costs (1); and Greater Flexibility (1).

In **2013**, all 13 officials responded to this question. The responses to this question were grouped into the following categories: Improved Environmental Quality (5); Planning for Stormwater at Start of Development Process (3); Fewer Ponds (1); Property owners like ESD practices more because of better aesthetics (1); Reduced Costs (1); Greater Flexibility (1); More creative design opportunities (1); Too early to tell (1) and None (1).

- 5. Redevelopment offers the possibility of improving the quality of many urban waterways through retrofits designed to treat runoff from existing impervious surfaces. Of course increasing the amount of impervious area treated raises redevelopment costs. Are there any incentives or other approaches that could accelerate retrofits by offsetting these costs?**

In **2010** all but one of the County officials responded to this question. The responses to this question were grouped into the following categories: Tax Incentives (4); Fee-In-Lieu (2); Stormwater Utility (2); Cost-Savings With Redevelopment (1); Few Redevelopment Projects (1); Fee Reduction & Accelerated Review (1); Modify Redevelopment Rule (1); and Other Thoughts (3).

Again in **2013** all but one of the County officials responded to this question. The responses to this question were grouped into the following categories: Tax Incentives (1); Fee-In-Lieu & Offsite mitigation locations (4); Stormwater Utility (1); Cost-Savings With Redevelopment (1); Nutrient trading (1); Need to fund more research into alternatives (1); and None (2).

- 6. While redevelopment projects are only required to meet the Water Quality Volume criteria, some jurisdictions require meeting recharge and channel protection too (to the MEP). What does your jurisdiction require?**

Three jurisdictions require that all three criteria be met when redevelopment is proposed: Cecil County, Montgomery County, and Prince George's County. Two require water quality and recharge on redevelopment sites: Anne Arundel County and Wicomico County. Kent County requires water quality and channel protection. This question was not posed in 2010.

- 7. How many practices would you see on a typical pre-ESD project versus post-ESD?**

All 13 jurisdictions responded. An average of 3 and 9 practices per site were required pre- and post-ESD respectively. This question was not posed in 2010.

- 8. Have you made any estimates of how many practices exist in your jurisdiction now and how many more will be present, say, in ten years?**

Nine jurisdictions responded that they have an average of 428 stormwater practices. Seven jurisdictions responded to the second half of this question and anticipated an average of 1,658 practices in ten years or nearly a four-fold increase. This question was not posed in 2010.

- 9. Do you have an estimate of the number of additional inspectors you will need to hire to cover the number of practices which will exist in ten years?**

Twelve jurisdictions reported an average of 4.4 inspectors today and that they would need a 62% increase in ten years. This question was not posed in 2010.

10. How many ESD waivers have been issued by your jurisdiction?

The 14 jurisdictions reported a total of 556 waivers. However, one jurisdiction accounted for 371 (67%) ESD waivers while the average for the other jurisdictions was 15 waivers each. This question was not posed in 2010.

11. Do you feel the overall benefits of ESD are significantly greater than those gained through the pre-ESD approach to stormwater management?

Eleven of the jurisdictions responded to the question. Of these jurisdictions all but ten (91%) said Yes. The other checked No. Five jurisdictions noted comments which raised concerns about how well ESD will work over the coming decades. For example, one county official noted that runoff appears to pass so quickly through some ESD practices that the full channel protection benefits may be negated. Another questioned the wisdom of requiring ESD for a isolated four-acre lot surrounded by cropfields. The other concern is how well ESD practices will be maintained. This question was not posed in 2010.

12. Is there anything your jurisdiction is doing which makes ESD work better?

The jurisdictions responded: Development of a standard that can be used in public right-of-ways with low maintenance; requiring additional pre-submittal meetings; Development of an improved gravel wetland; Applying ESD consistently and using third-party reviewers certified by MDE; Publication of a supplement to the Maryland Storm Water Design Manual with more detailed guidance and specifications; and An abbreviated review process for small projects. This question was not posed in 2010.

13. Are there any other thoughts you'd like to add?

Process has been refined over the past 3 years and is beginning to work fairly well. We would like to continue with what is working rather than making more changes at the state level.

Follow-up in 5 years could get better results, not alot of newer projects using all the ESD practices to determine if the goal of better water quality is being met. One benefit of the 3-step SWM review process is the final engineering review is going smoother for SWM & concepts are addressed sooner in design process. survey required a number for certain answers when one could not be provided--your questions may be flawed

Maintenance of these ESD is problematic.

SURVEY FORM

Experience of County Officials with Maryland Environmental Site Design

1. While your responses will be kept confidential, could we get your contact information to send you a summary of the results and in case we have follow-up questions?

Name:

Jurisdiction:

Email Address:

2. Have you seen a significant difference in review times with ESD plans when compared to those designed in accordance to the original 2000 Maryland Stormwater Design Manual?

Yes

No

If yes, what is the most common cause(s) for the increased review time?

3. What is the greatest frustration you've experienced thus far with ESD?

4. What do you see as the greatest benefits of ESD?

5. Redevelopment offers the possibility of improving the quality of many urban waterways through retrofits designed to treat runoff from existing impervious surfaces. Of course increasing the amount of impervious area treated raises redevelopment costs. Are there any incentives or other approaches that could accelerate retrofits by off-setting these costs?

6. While redevelopment projects are only required to meet the Water Quality Volume criteria, some jurisdictions require meeting recharge and channel protection too (to the MEP). What does your jurisdiction require?

Water Quality Volume

Recharge Volume

Channel Protection Volume

Other (please specify)

7. How many practices would you see on a typical pre-ESD project versus post-ESD?

Pre-ESD:

Post-ESD:

8. Have you made any estimates of how many practices exist in your jurisdiction now and how many more will be present, say, in ten years?

Now:

In Ten Years:

9. Do you have an estimate of the number of additional inspectors you will need to hire to cover the number of practices which will exist in ten years?

Current Number of Inspectors:

Number Needed in Ten Years:

10. How many ESD waivers have been issued by your jurisdiction?

Number of Waivers:

11. Do you feel the overall benefits of ESD are significantly greater than those gained through the pre-ESD approach to stormwater management?

Yes

No

Other (please specify)

12. Is there anything your jurisdiction is doing which makes ESD work better?

13. Are there any other thoughts you'd like to add?

Thank you

Verbatim Responses to Question 2: Have you seen a significant difference in review times with ESD plans when compared to those designed in accordance to the original 2000 Maryland Stormwater Design Manual?

The third step in the new review process. This mostly affects green sites since we allow combining the first two steps in the process if it's a redevelopment site with little or no environmental features to protect. By referencing the third step I was talking about going from a two step process prior to the new regulations to a three step process under the new regulations. Our labels for the three steps are different from the state's since we needed to integrate them into our current computer tracking system. We use the following labels for steps in the process depending on whether a subdivision application is needed or not :

Subdivisions

Sketch Plan ---- Final Plan ---- Permits

Non Subdivision

Preliminary Plan --- Site Development Plan --- Permits

What I was saying in my response to the survey is we wrote our program to allow applicants to combine the first two steps in the process if it is redevelopment with little or no environmental features or undisturbed soils to protect. For a subdivision we may combine the sketch plan and final plan reviews, and for a project that does not involve subdivision we may combine the Preliminary Plan and Site Development Plan steps. No state or county requirements are eliminated under this scenario, this approach just consolidates the steps to save time and money, thus encouraging redevelopment projects per smart growth principles.

Yes, initially. Now, no.

Extra review steps have impacted smaller commercial & religious projects, I would not characterize as 'significant' as much as I would call it "noticeable".

The increase in the amount of reviews because of adding the SWM Concept Plan.

Too many bmp' proposed to review, too many variations and details,

More devices and drainage areas, increased number of reviews per application, attempts by design engineers to avoid ESD or to use inappropriate devices

Verbatim Responses to Question 3: What is the greatest frustration you've experienced thus far with ESD?

Finding time and staff during a recession to properly train consultants and reviewers . We have lost 3 review positions due to budget reductions.

educating consultants; construction techniques - currently working with developers/ consultants/contractors on several projects where micro-bioretenctions are not draining. Trying to troubleshoot what went wrong during construction.

none

Lack of flexibility to streamline some of the small-medium projects.

none yet

Engineering community not following the design manual on limits for the ESD devices. ensuring that property owners understand the requirement and the maintenance obligations

Developing practical guidelines for developers and reviewers has been somewhat time consuming. Also, there seems to be a lack of forethought by engineers as to integration of the aesthetic qualities of various practices into the final product.

too cumbersome to review, too much paperwork and discussions to happen before a plan can be approved.

Understanding the theory of ESD calculations and how the new methodology compares to the previous design procedures.

Trying to get designers to comply with the regulations

Getting the Agricultural Community involved and on board with ESD.

Verbatim Responses to Question 4: What do you see as the greatest benefits of ESD?

More emphasis on protecting environmental features and integrating the swm solutions into the site plan rather than it being an afterthought that normally added to the development footprint and clearing. At least that is how we are trying to implement it, but are still having problems with design consultants just focusing on crunching the numbers.

Small business owners and homeowners seem to appreciate ESD options because they are more aesthetic and more easily incorporated into a site design.

potential improved water quality

distributed recharge and facilities that are inadvertently maintained/mowed by the landowners because they blend into the yard.

Better for the environment

too early to tell. one item appears to be more options available for SWM & decrease in costlier larger practices

Having SWM looked at and thought about early in the design of the project.

more direct involvement in and ownership of residential practices and more creative site design in commercial settings

Smaller, more numerous practices located close to the areas of pollutant production should increase the likelihood of providing better runoff reduction over the long term and thereby better stormwater mitigation.

None so far

Better water quality treatment of runoff, more incentive to disconnect impervious areas which improves both the quantity and quality of runoff.

Improved water quality

Mandatory concept review really helps the consultants before they get to far along with design.

Verbatim Responses to Question 5: Redevelopment offers the possibility of improving the quality of many urban waterways through retrofits designed to treat runoff from existing impervious surfaces. Of course increasing the amount of impervious area treated raises redevelopment costs. Are there any incentives or other approaches that could accelerate retrofits by off-setting these costs?

Giving credits for property owners under the new "Rain Tax", allowing for application fee credits if the cost is directly tied to the cost of improving water quality for redevelopment. Expanding the current property tax credit to include redevelopment, not just the current credit for doing water quality improvements voluntarily.

We are not a regulated MS4 jurisdiction and we do not implement a stormwater retrofit program. We do have private redevelopment projects. While redevelopment requirements were increased with ESD regs, they are still less than new development requirements, so that is incentive to redevelop, which results in a retrofit.

Find low cost alternatives so that redevelopment costs are not raised. Spend more time & \$\$ in research & development in this area. Grant funding to help offset these costs is always helpful.

We allow offsets. A developer can treat runoff from 120% of the required in another area where it is easier/cheaper.

A number of CIP projects (roads) are redevelopment. Need a bank of offsite locations, within same watershed, where practices could be installed when they can't fit in the R-O-W
no comment

Only offset would be a possible fee credit in our SWM fee program.

no

Montgomery County currently requires redevelopment projects to address full ESD to the MEP.

None.

Those incentives, like offsite alternatives, already exist in Somerset's ordinance.

Nutrient trading to achieve a higher level of nitrogen removal than the redevelopment can remove on its own.

Verbatim Responses to Question 6: While redevelopment projects are only required to meet the Water Quality Volume criteria, some jurisdictions require meeting recharge and channel protection too (to the MEP). What does your jurisdiction require?

More if existing problems are apparent downstream

Haven't seen any redevelopment project that can't meet all three.

ESD to the MEP

ESD volume includes quality, recharge and channel protection volume. I do not believe it is accurate to state that redevelopment projects are only required to meet water quality volume criteria.

flood control to attenuate 100 year storm

Verbatim Responses to Question 11: Do you feel the overall benefits of ESD are significantly greater than those gained through the pre-ESD approach to stormwater management?

depends. There are few urban areas in caroline county. Requiring ESD on a single family residence that is on a 4 acre lot surrounded by ag does not seem terribly necessary. This is probably more important in an urban area, or in towns.

can't determine without a detailed study too early to tell impacts

I believe the current ESD philosophy of stormwater mitigation is sound. The challenge is in physical application of the concepts.

With the exception of channel protection, which we have gone backwards (except in cases of infiltratable soils). The total quantity of water detained has been reduced, and the bioretention media is so porous the facilitates simply pass the water to the under-drain. This will cause channel erosion in some areas. We have asked designers to include a small hole at the under drain opening to the discharge inlet to address this issue, which should help some.

Only time will tell with updated water quality testing.

Verbatim Responses to Question 12: Is there anything your jurisdiction is doing which makes ESD work better?

Additional pre submittal meetings to discuss alternative site plans before the settle on the first official submittal.

We have a very mild amount of development and a small staff, so we have the luxury of working closely with the consultants to streamline the process.

Looking for low-cost alternatives for our citizens and assuring them that it won't be too onerous.

We have published a Supplement to the State SWM manual that provides design guidance and specifications of approved practices

apply ESD consistently. use a 3rd-party firm to assist in SWM review that has MDE certifications

An abbreviated review process if less than 1 ac of disturbance or a fast track project.

We are publishing detailed ESD practice design guidelines and technical policies to ensure better consistency of design and review. We also hold weekly meetings among the plan reviewers to discuss stormwater concepts that have been submitted. This has fostered significant discussion and better understanding of ESD design and implementation solutions.

develop a standard that can be used in public R/W with low maintenance

No.

We have developed a gravel wetland detail based partly on New Hampshire's approach, which (unlike MDE's version) allows water to pass through the stone media (while minimizing clogging)where it receives treatment.

Verbatim Responses to Question 13: Are there any other thoughts you'd like to add?

Process has been refined over the past 3 years and is beginning to work fairly well. We would like to continue with what is working rather than making more changes at the state level.

No.

follow-up in 5 years could get better results, not alot of newer projects using all the ESD practices to determine if the goal of better water quality is being met. One benefit of the 3-step SWM review process is the final engineering review is going smoother for SWM & concepts are addressed sooner in design process. survey required a number for certain answers when one could not be provided--your questions may be flawed

20 waivers mostly for underground utilities or stream restoration projects.

Maintenance of these ESD is problematic.

No.

On question 10, ESD has been provided to the MEP on all projects. Only 1 so far could do no ESD. Please clarify if you are asking how many adminstrative waivers (for grandfathering purposes) have been issued.