



5/13/16

To: Stormwater Management Advisory Committee  
From: Maya van Rossum, the Delaware Riverkeeper  
Re: 5.12.16 Committee Meeting  
Cc: Radnor BOC

**Dear Committee Members and Radnor Board of Commissioners,**

**Criteria to Guide Project Selection and Goals.**

I would like to, once again, urge the committee to identify and prioritize the criteria it will use in its decision-making. I have given this comment during public comment and in follow up written comments repeatedly since the time this committee was first formed. I think it is urgent that the committee undertake this process immediately so that the community can be engaged in an objective and helpful way and the criteria do not get created in the context of considering one particular project or another—as it has been to date, with the result that the guiding criteria have shifted and changed with each decision that has been made and the value of objective criteria has been lost.

I think there are two areas where clear criteria sets are needed.

1. The first set is for determining what areas of flooding in the township you want to advance for the additional modeling that is to be done for select areas by CH2M.
2. The second set is to guide which projects will be selected for design and implementation and what qualities you would like to see addressed with each project designed and moved to implementation.

Without these two sets of criteria, every presentation and discussion of options is done in a vacuum and totally dependent on what committee members are present at any given meeting, what members of the public have attended a given meeting to present information, and what township staff or board members have spoken with the committee or public before or during the meeting.

In prioritizing areas for the additional modeling effort by CH2M it may be of value to consider:

- ✓ Prioritizing for areas where the damage being sustained includes first floor flood damages versus basement flooding.

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- ✓ Prioritizing areas where the flood damages mandate a stormwater project versus a structural enhancement (such as impacts to power boxes where there is a more cost effective solution, such as moving them to the first floor of a home).
- ✓ Prioritizing areas with a certain frequency of flooding or where a minimum number of structures are impacted.
- ✓ Prioritizing areas where investment in a stormwater strategy can help avoid harms that would require future expenditures. For example, flooding that is causing erosion that is undermining bridges or impacting culverts that will be in need of future repair if the issue is not addressed.
- ✓ Possibly prioritizing areas where the township caused or contributed to the problem
- ✓ Possibly prioritizing impact to roadway travel.

In setting criteria or guidance that will be used to guide design and selection of different projects or strategies for addressing a particularly area of flooding, you may want to ensure consideration of the following issues:

- ✓ Is it important to ensure that when considering among different options that fees will be invested in projects that provide multiple benefits? For example, that priority support is given for projects that will address flood damages while at the same time providing other benefits, such as
  - preventing erosion from damaging infrastructure or property,
  - improving water quality so as to help the township meet clean water regulatory obligations, and
  - enhancing the community by providing for recreational opportunities.
- ✓ Should prioritization be given to projects that result in volume reduction over projects that are mere conveyance or peak rate controls but allow the volume of stormwater to remain the same or grow, given that volume reduction provides near term, long term and permanent protection?
- ✓ Do you want to ensure projects benefit a minimum number of residents or achieve other articulated community objectives?
- ✓ Do you want to ensure prioritization is given for projects that address first floor flood damages versus basement or yard flooding?
- ✓ Do you want to ensure that projects that will cause or contribute to other adverse impacts in the Township—such as increased erosion of downstream properties or perpetuation or increase of water quality problems that will impede the township’s ability to meet present and future regulatory obligations, that will have adverse impacts on aesthetics, property values or recreation—will be avoided?
- ✓ Do you want to prioritize projects installed on public lands versus private lands or allow co-equal consideration of both? (In previous committee discussions it seems to have been presumed that only public lands are an option, but this guidance was never discussed and officially decided upon.)
- ✓ Can projects that will benefit Radnor communities be located outside the municipal boundaries? If so in what circumstances?

The creation of these criteria and consideration of these issues would be an important way to engage the public early on in the process and secure community input to guide your decisions overall, as opposed to making decisions in a vacuum, project by project. It would also allow for more thoughtful

and objective community discussion unburdened by the high emotions and concerns that accompany discussions focused on whether or not to implement a particular project under consideration. And it will help the Committee identify and prioritize the best projects for stormwater fee investment.

**Dollar Per Gallon Calculation Suggestion:**

The suggestion that all projects be compared on a dollar per gallon of water detained is not an effective or informative measure for determining the best investment for stormwater funds. It is an overly simplistic and shortsighted calculation that does not reflect the realities of flooding costs. A more informative calculation would look at flood damages avoided for every dollar invested and allow room for consideration of other impacts such as avoiding other harms like ongoing or increased erosion or pollution harms.

A calculation that determines how much money is spent per gallon of water handled by a stormwater project does not provide a meaningful data point for decisionmaking. For example, comparing the cost of detaining a gallon of water in a detention basin versus the cost per gallon of a system that infiltrates and therefore reduces the volume of water dumped into a creek is comparing apples to oranges. Detaining water simply shifts the location and timing of impact; volume reduction avoids the harmful impacts all together. And so even though the volume reduction project might cost more per gallon, the level of benefit in avoiding flood damages is far greater; particularly when you consider that this approach not only avoids damages to homes, but it also avoids erosion and pollution harms that inflict additional costs on the township to resolve.

Detention basins are by design only meant to focus on the peak rate part of the flooding problem—they don't address the increased volume of stormwater that is discharged into a creek and is the cause of increased flooding downstream. And in fact, because detention basins take no action to diminish increasing stormwater volumes, and discharge the increased volume of water collected directly into the creek, at a greater volume over a longer period of time than in a natural condition, they can actually exacerbate flooding and flood damages, including harm to structures, increased erosion, and increased pollution problems.

Preventing or reducing the volume of stormwater runoff discharged to a creek and on downstream communities is most often a far better investment. By preventing and reducing runoff volume these strategies prevent the stormwater that otherwise causes or contributes to flooding. Stormwater strategies that reduce runoff volume also reduce runoff velocity and pollution, and as a result they provide protection to our properties, bridges and roadways from erosion; protect our creeks from pollution (which helps reduce the cost of complying with state and federal laws); and make our creeks safer places for kids to visit, fish and play. Volume reduction strategies often can support recreation elements and offer aesthetic beauty that enhances the community and can even benefit the value of nearby homes.

Thus every dollar invested in reducing stormwater volume provides greater flood damage reduction benefits—including helping to solve other costly township problems as well as providing other community enhancements—and is generally a far better near term and long term investment than a mere detention or conveyance strategy. In short, a dollar per gallon of water detained provides far less benefit and value than a dollar invested in a volume reduction strategy, particularly if it includes infiltration and vegetation assets.

The following are the kinds of multiple benefits that you should be looking for in any stormwater investment you make:

- Flood damage reduction.
- Erosion undermining infrastructure (e.g. roads and bridges), undermining trees, and eating away public and private lands.
- Water quality improvements, including those that will help meet permit requirements and negate the need for additional investments to meet those legal obligations.
- Recreational opportunities (e.g. the system being proposed for West Wayne that would include walking and viewing paths for the community).
- Aesthetic beauty.
- Potential market value enhancements for nearby homes (the value of trees and healthy habitats has been shown by study to improve the market value of homes by 6 to 15 to even 30%).
- Avoidance of safety hazards (detention basins can pose known safety hazards and/or mosquito problems).
- Groundwater recharge helping to support drinking water and base flow of streams (some in the township rely on well water; so, from a drinking water perspective recharge is as important as stream protection).
- Wildlife and aquatic life habitat.

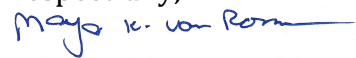
This list is not exhaustive but I think it gives you a sense of the kinds of multiple benefits you can and should expect from any stormwater dollars invested.

#### **Regarding Memo on Emergency Services Flood Risk Locations:**

I would like to point out two discrepancies in this document that need to be addressed. In the memo Lt. Chris Flanagan is reported to have said that twice every five years flooding makes roadways impassable even for fire trucks. Similarly, the memo includes in its summary ambiguous language regarding “vehicular access” that gives the suggestion that flooding has prevented fire trucks from getting to or from the station house. And yet, Chief Joseph Maguire, the Radnor Fire Chief, clearly stated that “Reports of roads being impassable by fire trucks are exaggerated,” that “fire trucks have been able to drive through flood waters in N. Wayne” and that while the Radnor Fire Company station “gets flooded on occasion,” “trucks can still get out ok.”

Given the Fire Chief’s clear statements contradicting Lt. Flanagan’s false assertion or the summary suggestion regarding ingress and egress from the fire station, I think this memo needs editing. If you retain Lt. Flanagan’s statement then immediately following you need to refer to the Fire Chief’s contrary comments. And the Summary bullet point referencing this needs to be edited to be clear that fire trucks have not, according to the Fire Chief, been impacted.

Respectfully,



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the Delaware Riverkeeper