



To: Radnor Township Commissioners and Planning Commission
From: Delaware Riverkeeper Network
Regarding: Ordinance 2013-21 Comprehensive Integrated College Development (CICD)
Date: January 19, 2014

The Delaware Riverkeeper Network urges the Radnor Township Commissioners and Planning Commission to include as provisions in the CICD zoning ordinance:

- provisions that will require enhanced stormwater management – this is particularly important if there is no reduction in the high level of impervious coverage allowed;
- provisions that will require enhanced, science-based, riparian buffer requirements for streams to prevent erosion, to help reduce downstream flood damages, and to protect stream health;
- modification to the open space mandate in the CICD so it is linked to impervious coverage as opposed to building coverage; and
- additions to the Development Impact Statement requirement to ensure a decision by the Township can withstand legal scrutiny if challenged.

Flooding, erosion, and declining stream health are a problem for Radnor Township streams – including in the Darby Creek and Gulph Creek watersheds.

- Flooding downstream on the Darby Creek is so serious that homes and lives have been lost.
- Pollution caused in part by stormwater runoff is so significant that some streams have been listed on the state list of impaired waters requiring special regulations.

It is important that the CICD zoning ordinance, and the increased development opportunities it allows for on all college and university campuses in the Township, becomes an opportunity to make these problems better, not worse.

Providing Protection from Flooding, Flood Damages, Pollution and Erosion By Reducing the Volume Stormwater Runoff.

The CICD ordinance as proposed allows for very significant levels of imperviousness – an estimated 80% imperviousness in the case of Villanova and 45% imperviousness on campuses who may seek to build in more “green” areas of their campuses. A number of the campuses that may avail themselves of the CICD ordinance have streams that run through their properties and will be impacted by this increased level of imperviousness. High levels of imperviousness means high levels of polluted runoff contributing to flooding, erosion and water pollution unless there is a stormwater mandate that prevents those harms.

Radnor's existing stormwater ordinance does not include volume reductions as a focused goal. As a result, allowing the current township ordinance as the backstop for addressing stormwater runoff issues from CICD projects will not be a successful strategy.

The assertion that Radnor Township's current stormwater ordinance includes stringent volume reduction mandates is not accurate. While Radnor's stormwater ordinance does include a pre-to-post groundwater recharge requirement and does include water quality protections and peak rate controls, it does NOT specifically require volume management. As such, it is not accurate to say that Radnor's ordinance effectively addresses volume of runoff – in fact that is the critical stormwater element that is missing. Volume control is important for flood control, water quality protection, pollution prevention, and stream bank protection – it is a key missing element we believe should be included in the CICD zoning ordinance.

Additionally, the statement in the Nagle ordinance that Radnor's current stormwater ordinance mandates an assumption of healthy meadow and/or woods as the pre-development conditions for redevelopment projects is simply wrong. For example, under the current Radnor stormwater ordinance, and the CICD zoning ordinance as proposed, Villanova can – and most likely will -- assume that the pre-existing condition of its parking lots is just that, parking lot, with all of the pollution and flooding volume it brings, and as a result there will not be much stormwater management required.

Villanova and the other college campuses which avail themselves of the CICD ordinance should be required to follow the most up to date agency thinking on how to best manage stormwater from development projects – whether they are new projects or redevelopment projects. It should mandate that projects built under the CICD ordinance comply with the US EPA “Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act.”

The Delaware Riverkeeper Network has provided specific language that, if included in the CICD ordinance, would provide critical volume control protection. The language we are recommending be added is as follows:

(k) Stormwater Management Regulations. All applications for a CICD shall provide Volume Control for Stormwater Management in accordance with the standards set forth in this subsection, in addition to the requirements of the Radnor Township Stormwater Management Ordinance. Conditional use approval shall not be granted unless the Applicant demonstrates compliance with the standards set forth herein.

1. Applicants shall utilize Green Infrastructure/Low Impact Development designs and practices to infiltrate, evapotranspire and/or capture and use stormwater.
2. Volume control shall be provided in accordance with the performance criteria established in the U.S. Environmental Protection Agency “Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act”, (EPA 841-B-09-001, December 2009 www.epa.gov/owow/nps/lid/section438).
3. Stormwater management systems for CICD shall be designed, constructed, and maintained to manage rainfall onsite, and prevent the off-site discharge of the precipitation from all rainfall events less than or equal to the 95th Percentile Rainfall Event to the maximum extent technically feasible (METF).

- a. The 95th Percentile Rainfall Event is defined as the event whose precipitation total is greater than or equal to ninety-five (95) percent of all storm events over a given period of record.
 - b. The 95th Percentile Rainfall Event shall be calculated in accordance with the methodology outlined in EPA 841-B-09-001 using a rainfall record of not less than thirty (30) years. In the alternative, a 95th Percentile Rainfall Event of 1.8 inches, as calculated using data from the Philadelphia International Airport, may be applied.
4. Any proposal to capture and use runoff so that it is ultimately discharged to surface waters or a sanitary treatment system is subject to review and approval.
5. Applicant shall ensure that any underdrain designs, if employed, shall have adequate retention capacity for the 95th Percentile Rainfall Event volume, with release of the retained volume occurring over not less than seventy-two (72) hours from the start of precipitation.
6. For structures such as roofs and paved surfaces that can increase the temperature of stormwater runoff, Applicants shall demonstrate that they have considered, and used as appropriate, materials that minimize temperature increases (e.g., concrete vs. asphalt; vegetated roofs).
7. Applicants may reduce peak rate and volume of stormwater runoff by utilizing stormwater management designs that retain runoff volume. The Cover Complex Curve Number used to estimate post-development peak flow rates can be adjusted in accordance using the following equation:

$$CN' = \frac{200}{(P + 2Q + 2) - \sqrt{5PQ + 4Q^2}}$$

where:

P = design storm (e.g., 10 year 24 hour storm)

Q = $Q_x - Q_{GI}$

Q_x = design storm runoff

Q_{GI} = runoff captured by green infrastructure.

In the alternative, institutions that avail themselves of this ordinance should be required to apply the CG1 standard in Pennsylvania's Stormwater BMP Manual and to run its calculations assuming a pre-existing condition of woods or meadow in good condition. Such a requirement would not be redundant as Commissioner Nagle mistakenly asserts in the comments resulting in what is now being called the Nagle Ordinance.

Protecting Streams, Preventing Pollution and Erosion with a Scientifically-based Buffer Requirement.

The mere 50 feet included in the proposed CICD ordinance fails to reflect the 100-foot buffer requirement that the Stroud Water Research Center and other respected stream ecologists, stormwater experts and regulatory agencies recommend. With regards to riparian buffers, the science is increasingly clear that minimum 100-foot riparian buffers, preferably forested, are critical for providing water quality and habitat protection, and to prevent stormwater-induced erosion. Failing to mandate minimum 100-foot stream buffer protections in the proposed CICD zoning ordinance fails to support modern science on this important stormwater related subject.

The language the Delaware Riverkeeper Network is recommending for the CICD is as follows:

(3) Special Regulations

(a) Riparian Buffer Setback: Unless a greater buffer width is provided herein or under any other law, regulation or ordinance, a minimum riparian buffer of one hundred (100) feet shall be provided.

[1] For any waterbody that has been designated as High Quality, Exceptional Value, or any other special protection designation, a minimum riparian buffer of three hundred (300) feet shall be provided.

[2] For any waterbody that has been designated as Impaired, a minimum riparian buffer of one hundred and fifty (150) feet shall be provided.

[3] All riparian buffers shall be populated with only native plant species.

If the Commissioners and Planning Commission do not choose to include the riparian buffer language the Delaware Riverkeeper Network proposes and instead sticks with the deficient 50 foot requirement I would ask that you ensure that if a more meaningful buffer requirement is ever passed in the township that the CICD language ensure that new provision would apply. To that end it would be important to insert language such as "... 50 foot buffer ... or the minimum riparian buffer requirement included in Radnor Township's Zoning code shall apply, whichever is greater."

The Preserved Land Obligation Requires a Meaningful Connection to Impervious Coverage.

The Preserved land obligation in the ordinance is currently linked to building coverage, not impervious coverage. Impervious coverage, whether it is in the form of buildings, parking lots, side walks, patio space, paved sitting areas, etc are all triggers for increased runoff, with the non-building areas often being a more significant source for pollution. Therefore the preserved land obligation to mitigate these harms should be associated with impervious coverage over 30% as opposed to building coverage over 30%. In addition, the preserved land obligation should be for new open space, not areas already part of the campus, and should be lands that are primarily vegetated with native trees and shrubs, not mowed lawns.

The Delaware Riverkeeper Network has provided language that easily remedies the inappropriate linkage to building coverage as opposed to impervious coverage and puts in place the other beneficial guidance identified.

In subsection (c) regarding the preserved land obligation, two changes are required:

- In the two places where the words "building coverage" is used, it should be replaced with "impervious coverage"
- And a subsection (c)(6) should be added which reads:

[6] Such lands shall be new open space areas, not existing areas already part of the campus, they shall be primarily vegetated with native trees and shrubs, and shall not be maintained as mowed lawns.

Development Impact Statement Requirement Needs Supportive Objective Standards to Ensure it can Withstand Legal Scrutiny if Used to Reject an Application.

The Development Impact Statement requirement in section 3 does not provide the level of protection needed from bad proposals. It requires a look at a variety of issues but pursuant to municipal law, as long as an applicant can show they have complied with the objective standards set forth in the ordinance, the project will have a right to be built. And so the ordinance needs to include a set of objective measures that articulate what it means to impact the environment and community so that failure to meet those standards results in a failure to meet the requirements of the conditional use. The impact statement provision needs modification to ensure that it provides the fully defensible legal basis for saying “no”.

Additions which the Delaware Riverkeeper Network has recommended for this section of the CICD include (these revisions have been previously shared in a tracked changes version of the ordinance document and can be re-shared if helpful but are presented below to consolidate our recommendations):

Including in section (1) of this section the following language: In evaluating such impacts, consideration shall be given to potential impacts of the proposed use during site preparation, construction, and operation phases.

Also in subsection (1) change the term “contain” to “include”.

Add the following sub-provisions under section (1):

(c) The potential adverse environmental impacts of the proposed use, including the following parameters: 1) air pollution, including dust and fugitive emissions; 2) surface groundwater pollution; 3) stormwater runoff, soil erosion and sedimentation; 4) soil contamination, both on-site and off-site; 5) groundwater supply; 6) noise; 7) light; 8) odors; 9) potential for fire and explosion; 10) impacts on local flora and fauna; 11) impacts on public health; and 12) the extent to which Federal and State environmental regulations will be met or exceeded.

(d) Alternatives to the proposed use to lessen adverse impacts, including but not limited to the following: 1) changed location; 2) different sized facilities; 3) redesign, layout or siting of building, structures and impervious surface; 4) alternative methods for air pollution control, water pollution control, water supply and/or solid waste handling and disposal.

(m) Measures to mitigate any unavoidable adverse impacts.

(n) Assessment of the risks to public health and the environment from the proposed use after implementing the mitigating measures.

(o) Proposed ongoing monitoring of key or critical environmental and public health parameters by the Township to ensure that the actual environmental and public health impacts are maintained at or below those estimated in the assessment and a proposal for applicant to pay for the expenses connected with such monitoring.

(p) Such additional information as the Township may request to fully evaluate the potential public health and environmental impacts of the proposed use.

Add under section (2) in the Development Impact Statement section the following should be added:

- (d) The existing site conditions and features, including an inventory of the physical resources of the tract. The inventory shall include features such as geology, topography, soils, hydrology, and biological resources. The conditions shall be shown on a map drawn to a scale of not smaller than one hundred (100) feet to the inch.
- (e) An impacts inventory, documenting the impacts of the proposed use, including the type and duration of these impacts. In addition to a narrative presentation of the impacts, the Applicant shall display where the project adversely affects the tract's resources, conditions or characteristics through the use of a map drawn to a scale of not smaller than one hundred (100) feet to the inch, wherein the areas adversely impacted by the proposed use are highlighted.
- (m) Such other documentation as the Township may request to fully evaluate the potential public health and environmental impacts of the proposed use.

And add a section (3) which would read:

- (3) The Development Impact Statement shall be prepared by qualified experts, including engineers, toxicologists, ecologists and other experienced professionals. The Applicant shall be responsible for the Township's professional fees and costs incurred in the Township's review of the proposal.

Objective measures should be set for all of the areas identified as of concern in the Development Impact Statement section and should also include some more consideration of environmental issues such as a demonstration of hydrologic change in the receiving stream, impacts to wetlands or flooding, traffic ramifications, water quality implications, impacts on the ability of the community to meet MS4 or TMDL legal obligations, impacts to storm drainage, causing or contributing to erosion, noise impacts, lighting standards, tree counts/limits on cutting of trees of certain diameter, native plant standards... etc.

The Delaware Riverkeeper Network has specific language changes it would like to recommend for ensuring the CICD ordinance, if passed, reflects current and appropriate environmental standards and will not become a new source for increased pollution and flood damages. We respectfully ask the Commissioners and Planning Commission to consider our concerns and our recommended language to resolve them.

Respectfully,



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the Delaware Riverkeeper