



## Memorandum

**To:** Vojin Janjic

**From:** Tennessee Stormwater Association Policy Committee

**Date:** July 25, 2019

**Subject:** *Compilation of TNSA Member Comments Submitted on Proposed New Rule 0400-40-10-.04*

The TNSA Policy Committee solicited review comments from TNSA members on the proposed Rule 0400-40-10.04. The rule is based primarily on mediated language from the NPDES MS4 General Permit appeals process that concluded in November 2018. The comments received are provided below and are submitted here on behalf of our large and diverse membership. Should you have any questions or wish to discuss these comments with TNSA, please do not hesitate to contact us.

- The provisions of rule 0400-10-.04 look good. I understand the substance and language of the proposal copies the agreement of parties who appealed the permit. It seems to me that the settlement agreement produced a pretty good result. And I would say that the proposal presents requirements in clear and understandable manner.
- As a design engineer working with developers and contractors, my observation is they bear the brunt of these regulations from an economic perspective. The regulations proposed do not seem to be equivalent and punish methods that are not Low Impact development measures. While we all support improved water quality and agree that we cannot do “nothing”, the regulations fail to recognize the potential economic impact on these projects, particularly in the smaller MS4s across our state. The same project in Franklin or Nashville can absorb more cost because the value is greater from the tenant’s perspective than the same project in smaller MS4s. The additional cost of some of these measures would make these projects not economically viable because the numbers don’t work for the developer or the tenant.
- The Notices of Rulemaking for both the proposal for amendment of the NPDES rules in Chapter 0400-40-05 and the general permit rules in Chapter 0400-40-10 state:

*The proposed provisions reflect the terms of a settlement agreement with the Homebuilders Association of Tennessee and several non-governmental organizations to resolve the appeal of the 2016 Phase II Municipal Separate Storm Sewer Systems (MS4) general permit.*

As such, the Department has excluded from the discussions the very entities that would have its NPDES permits directly affected by the MS4 rules, i.e., the MS4 communities. Due process cannot justify seeking the input of only an association representing homebuilders and environmental groups, two groups that do not reflect the interest of the entities that would be responsible for implementing NPDES permit MS4 requirements. The fact that the Homebuilders Association of Tennessee and environmental groups[1] were litigious in challenging a permit does not mean that the Department can appropriately limit input on the development of MS4 rules to only those interest groups to the exclusion of MS4 communities.

While it is recognized that MS4 communities now have the opportunity to comment on the proposed rules, the Department is less likely at this point to consider the comments of others after negotiating a standard with these interest groups, especially since its dismissal of the MS4 permit appeal is contingent upon the Department taking action that is in “substantial conformity” with the proposed standards. *Settlement Agreement, ¶4 at 2*. Furthermore, there have likely been in-depth discussions on the underlying issues, with each party identifying the underlying rationale for its position. The administrative proceedings of the permit appeal negotiations should be shared as part of the rationale so the permittees can understand how and why these standards imposed on us were developed.

- 0400-40-10-.01 (2) - It seems this short paragraph could be simplified by deleting 13-15 words, so that it would read:

*Electronic reporting. This chapter requires the submission of forms including but not limited to making reports, submitting monitoring results, and applying for permits. The Commissioner may make these forms available electronically and, if submitted electronically, electronic submission shall comply with the requirements of Chapter 0400-01-40.*

- 0400-40-10.04 - First paragraph refers to “effluent limitations.” The requirements should be referenced as “performance standards.”
- 0400-40-10.04 - Provide definitions for “new development,” “redevelopment,” and “disturb.”
- (1)(a) - Permanent Stormwater Management Program: There needs to be more emphasis placed on public education to achieve permanent water quality behavioral changes in neighborhoods instead of vigorous inspection and enforcement of devices from MS4 staff. Rather than requiring SCMs in all circumstances that are inadequately maintained by property owners or HOAs, cause homeowner confusion, and are difficult to inspect by smaller MS4s, an alternative solution may be to include an option for an MS4 that would allow them to decide if SCMs are practical for an individual neighborhood or if post-construction water quality can be achieved through alternative means like a targeted educational program.

- (1)(a) – the word “remove” should be changed to “treat for”. “Remove” can be translated by many as complete removal of all pollutants, which is not an attainable standard. It also occurs (2)(b). We note that the settlement agreement redlined “remove” and replaced with “reduce.”
- (1)(b) – replace “ensure” with “verify”. The permittee cannot ensure that measures are adequately maintained. They can only develop programs to check and verify if it’s done.
- (1)(d) – it’s not clear what is required within the implementation plan document. It would seem unreasonable for a local government to develop an entirely new program within 90 days if that is what is being requested. If the implementation plan is only to describe how the local government will go about developing their program, then this 90-day timeframe is adequate. If the plan is expected to include detailed policies and procedures, then the timeframe should be extended to at least 12 months.
- (2)(a) – The Rule here mentions MEP, but never clearly states that MEP is defined by 2(b).
- (2)(a) – here and in multiple other areas, the language only mentions “new development.” Is new development defined anywhere to include re-development? If not, it should be clarified what types of development are required to meet these performance standards.
- (2)(a) – “reduce pollutants to the maximum extent practicable” has no meaning as MEP is not defined anywhere. If it is undefined, how do you know you have achieved it? If this is going to be used, then MEP should refer to (2)(c) and say that if (2)(c) is achieved then so is MEP.
- (2)(b) – this section says SCMs should be designed to operate “for the life of the new development project.” No infrastructure, much less SCMs, are capable of operating in perpetuity. This requirement should be removed or clarified.
- (2)(b) - It seems that in the next to last sentence, the word “new” could be deleted. So, “...72 hours following the end of the preceding rain event for the life of the new development project.”
- (2)(b) – No mention is made of the basis of design storm selection. Many previous documents from EPA and others indicate that a 95<sup>th</sup> percentile event is appropriate for permanent stormwater designs, but this new Rule requires an event that for much of Tennessee will be around a 99<sup>th</sup> percentile event. For Knoxville, the former is about 1.45” and is larger than all events comprising well over 80% of the total annual rainfall, while the latter is about 2.90” and is larger than events comprising 98.1% of total annual rainfall, which seems excessive for a design whose failure would not cause significant risk to life or property. It is also not clear that utilizing a larger storm event benefits a TSS-removal water treatment design. In fact, designing for such a large and infrequent event could lead to poor performance for the many smaller events comprising most of the runoff and pollution. For example, a hydrodynamic

separator designed for a very high flow rate work may not perform well for the vast number of much smaller events, as those would not produce sufficient flow velocity to generate the centrifugal forces necessary to separate particles. Bigger is not necessarily better.

- (2)(b) – No mention is made of the storm intensity distribution that should be used in routing the storm event through the design. EPA design examples assume a uniform distribution over 24 hours. For other hydrologic designs a Type II distribution is assumed. These would give greatly different results for any design element defined by flow rates or infiltration rates.
- (2)(b) – The storm definition issues mentioned above combine in complicated ways. For example, with the previously-used Knoxville 95<sup>th</sup> percentile event depth (1.45”) and an assumed Type II distribution, the 1<sup>st</sup> inch of rainfall occurred well past the very high-intensity Type II peak, which is where most runoff is generated. Moving to the 1-yr event (2.9”) means that the 1<sup>st</sup> inch occurs well before the Type II peak, so less runoff is actually generated by that 1<sup>st</sup> inch of rainfall. This is exacerbated by defining it as a 24-hr event, which stretches the intensity peak out even further from the previously-used 15 hours, further reducing the runoff volume from the first inch.
- (2)(b) – what reference should be used to define the 1-year, 24-hour storm at a given location? The rule should reference some standards, such as NOAA Atlas 14.
- (2)(c) – for the WQTV column, could the table clarify what is meant by “first 1 inch of the design storm?” Is it the first inch of precipitation that is to be captured? Or, is it the runoff volume generated from the first inch of the storm? Those are two different values.
- (2)(c) – the signed settlement agreement included a comment in the side-bar that stated, “The rationale will indicate that MS4s may offer these four options.” It assumed that the options in the table are equivalent. As such, does the note infer that permittees will be able to offer as many or as few of the 4 options listed in the table? It is not clear based on the current wording whether permittees will need to offer all of the 4 options.
- (2)(c) - Previous to the current draft, TDEC has invested a substantial amount of time, funding and energy into development of a design tool to meet the core EPA permanent water quality standards which this permit is intended to address. This was done in partnership with the University of Tennessee (UT). In the period contemporary with the appeal process and subsequent to development of the subject Rule, subject experts at UT have continued refinement of this tool (currently called STAR) to provide a clear path to engage site design in such a way so as to most efficiently address pollutants of concern, adequately value the inherent benefits of thoughtful site hydrology design and do this in a way that has ultimately been proven to be cost-effective while minimizing the complexity of required stormwater control measures (SCMs) on sites. Additionally, the first row in the Water Quality Treatment Volume and the Corresponding SCM Treatment Type for the 1-year 24-hour design storm Table is for infiltration; therefore, a tool like the STAR would be helpful, as some MS4s have

currently found allowing designs using the STAR tool, to assess compliance with this requirement.

It is particularly noteworthy that in Knox County, one of the most prominent and prolific real estate developers, Scott Davis, has become an avid user of the STAR tool for site design. Knox County asks that TDEC provides a clear position as to the on-going acceptance of STAR-derived design as being permit-compliant measures to meet Permanent Stormwater Standards. Further, we ask TDEC to continue support of development of the STAR tool as it has proven by its de-facto endorsements to lend site designs that best meet the short and long term needs of land development permit applicants, MS4s, and property owners who will be responsible for maintenance of SCMs.

- (2)(c) – it seems there needs to be more clarity on the types of SCMs allowed within each SCM treatment type category. For example, “biologically active filtration with an underdrain” appears to refer to a bioretention SCM with an underdrain, whereas a bioretention practice with no underdrain may fall under the first category of SCMs. Should this section refer to some guidance document for clarity on the approved SCMs, such as those listed in the Tennessee Permanent Stormwater and Design Guidance Manual or approved equal?
- (2)(c) – the 4th category of SCMs does not use any defined treatment volume, but rather a flow rate. This practice should be removed from the table defining “water quality treatment volumes” and presented separately.
- (2)(c) - The specified design storm (1-year, 24-hour) for some locations in Tennessee is less than 2.5”. In those locations, the WQTV requirement for the SCM treatment types which define the WQTV as the first 2.5 inches of the design storm will exceed the design storm.
- (2)(c) - How will WQTV be calculated?
- (2)(c) - How will “maximum flowrate of the design storm” be calculated for manufactured treatment devices (MTDs)?
- (2)(c) - One area of the proposal where I might ask for more explanation: “maximum flowrate of design storm” in the table of WQTVs.
- (2)(c) - How are MTDs to be sized? Typically, only one size of a particular model of MTD is tested by NJCAT, but several sizes are available.
- (2)(c) – Are there data showing equal TSS concentrations generated from all impervious surfaces, so that roofs are truly like parking lots as suggested by “impervious surfaces”? If not, on what basis are all impervious surfaces lumped for a TSS-based rule? If a designer provides evidence that 95% of all TSS is generated from parking lots, based on this Rule it should be acceptable to remove 84% of the parking lot runoff TSS (thereby providing 0.95 \*

0.84 = 0.80 = 80% total TSS removal) without treating any roof runoff. In that case, it is not justified to define the WQTV based on all impervious surface equally.

- (2)(c) – On what basis are the WQTV depths increased depending on practice type, and what are the justifications for the selected increases? Note that this is more complicated than it first seems and may lead to unexpected consequences.
- (2)(c) – The table is difficult to interpret, likely because the overarching treatment goal is confused and confusing. Though only a TSS removal goal is stated in the previous text, the table text indicates an unstated desire to increase infiltration and to remove Nitrogen (N). Though it is mentioned that TSS is considered as a surrogate for many other contaminants, the standard is clearly based on TSS removal, as some of the table alternatives really only remove that.
- (2)(c) – MS4s with existing validated and previously-approved methods for defining and determining adequate treatment should be allowed to continue with their current approaches, as those meet the 80% TSS removal criteria, often using a combination of infiltration and other treatment approaches. In other words, the “grandfather clause” present in the current 2016 Permit should be retained in this Rule in some way, as the science on which those previous methods were based went through a rigorous development and approval process. On what basis are those previously-approved methods now presumed to be inadequate? On what basis was that clause removed?
- (2)(c) – It is not clear how the WQTV should be calculated for designs using combinations of SCMs falling in different rows. If forced to design the entire system for the largest WQTV, designers will lose all incentive to use SCMs in the earlier rows, which based on the different WQTV requirements appear to be implicitly preferred.
- (2)(c), table row 2 – Why does the filter need to be “biologically active”, when TSS removal is the sole performance criteria? In addition, the 12” of internal water storage in these practices is meant for N rather than TSS removal, so is also irrelevant. If N removal is a requirement for this row of practices, how do we justify leaving that out of the other rows? If TSS removal is truly the sole performance criterion, then those two specifications for N removal found in this row should be deleted. This should solely require filter material providing 80% TSS removal from the influent.
- (2)(c), table row 2 – There is no standard definition of “biologically active filtration” nor standard specifications for what counts as “internal water storage”, and this new terminology is not consistent with existing state and local technical guidance. Also, none of this is even relevant for TSS removal. If the rule is expanded to include within the definition of MEP treatment of other contaminants, these specifications would need to be greatly expanded to insure adequate treatment, as per designs in North Carolina and Minnesota.

- (2)(c), table row 3 – Previously-approved Permits allowed use of wet ponds and extended detention basins for 80% TSS removal based on a 1” WQTV. This proposed Rule suddenly jumps that up to a WQTV of 2.5”. Does the State have evidence to justify such a substantial size increase for a previously-approved practice?
- (2)(c) – Based on an infiltration modeling analysis of the table rows (using STAR, which is an improved version of the RRAT design tool previously approved by TDEC and external reviewers), designers should clearly use the 2nd row. Assuming a sand-compost mixture for the filter material, the sole limiting factor is how fast water can be shoved through the material before reaching the underdrain. Where under the previous Permit requiring some on-site retention the highest impervious-treatment ratio was around 16:1 (matching very well with published results), with filter practices adequately removing TSS but requiring no infiltration this can easily be pushed up to 50:1. If it is assumed that the rainfall is evenly distributed evenly over 24 hours, this can rise even higher. Such a filter (much less a hydrodynamic separator) is clearly not near as representative of the natural hydrologic state as achieving infiltration, but since the Rule includes no infiltration requirement that is irrelevant.
- (2)(d) - Unlike previous drafts of the MS4 permit, the rule does not address circumstances whereby a permittee may exempt a property from meeting the requirements (ex. site restrictions, existence of karst features, etc). Does the rule allow for a permittee to develop a list of exemptions or limitations on the types of SCMs available to a designer/developer when site restrictions exist? This section only addresses incentives that may be offered.
- (3)(a) - We ask TDEC to provide additional guidance for valuation of mitigation projects. At a minimum, we ask these questions be addressed:
  1. Are mitigation projects to be traditional projects such as streambank restoration or wetland creation?
  2. Will site hydrology SCMs be considered acceptable means of mitigation?
  3. Will TDEC support a standardization currency for water quality mitigation such that projects can efficiently be engaged across MS4 jurisdictional boundaries?
  4. If a watershed management plan indicates a prioritization of particular potential mitigation areas within an MS4 for impact to water quality, should the 1.5 multiplier be required?

The mitigation approach is a smart watershed management tool from which all parties involved in the land development process will benefit. We ask that a method of evaluating watershed condition to assess water quality (such as the Urban Water Report Card concept) be endorsed and supported substantially by TDEC for the benefit of MS4s as well as to

create a viable platform for land development permittees to engage the best selection and placement of SCMs.

- (3)(b) – It says that “public stormwater fund should be used to fund public mitigation projects”. Can it be assumed that grant funds or other types of local funding (utility revenue, bonding) can be added to this fund to pay for these projects? It would seem rare that such a fund would be capable of funding all the required needs.
- (4) – it’s conflicting to say in section (2) that the permittee is providing treatment to the MEP, and then in this section say that buffers “provide additional water quality treatment.” The rule should be crafted to account for the benefit of water quality buffers in addition to an SCM in series to meet the 80% TSS reduction goal. Buffers are SCMs.
- (4) – does “unassessed waters” refer to any water in the State that TDEC hasn’t assessed? This should be further defined as it’s not clear to the extent that this requirement covers? Ditches, swales, wet weather conveyances, etc?
- (4)(b) - Please do not allow SCM’s in buffers. As an MS4 that will be ultimately responsible for ensuring maintenance this will be very problematic for access and any maintenance requirements. As an MS4 manager it will make site access difficult at best not to mention extra requirements in plan review process to ensure, adequate room for equipment, and potential closure of greenways/ greenspace.
- (4)(b) – authorizing infiltration-based SCMs within the buffer should not be allowed. First, infiltration practices likely will not be effective close to streams as infiltration will be limited by high water tables. Second, the SCMs will likely be inundated and potentially destroyed by larger storm events. Third, SCMs must be maintained, which means equipment may need to access the site, which disturbs the buffer that is supposed to be protective.
- (4)(b) – waters that meet standards are not addressed in the table. Should the permittee assume that any waters within the jurisdiction that have been assessed and meet current standards do not require a buffer?
- (4)(b) - What is the minimum buffer width for a water with unavailable parameters for a pollutant other than siltation or habitat alteration? For example, a water with an unavailable parameter for mercury would not fall under the 30’ width (available parameters or unassessed waters) or the 60’ width (unavailable parameters for siltation or habitat alteration).
- (4)(b) - I wish the buffer width for unimpaired waters were more – maybe 45 feet. I understand of course that the 30 feet is a minimum and that a local government may adopt a larger width.

- (4)(c) - Discourage the language allowing use of SCMs inside the buffer – GI SCMs usually rely on infiltration and unlikely to be able to do that in a floodplain or buffer scenario.
- (4)(d) - Water Quality Riparian Buffers. TDEC should consider allowing the same buffer averaging in permanent buffers as they do for construction buffers without pre-authorization from the local EFO. This would create consistency in the field inspection and a smoother transition between the construction phase and permanent phase of development. Also, as the enforcement aspect of permanent buffers may be challenging for already understaffed/underfunded MS4s, TDEC should consider providing guidance to MS4s as to how they should enforce a set of buffer requirements.
- (5)(b) - Reference is made to sub-section 4.1.1, which is likely a reference to the general permit, not the rule.
- (5)(b) – this paragraph mentions a compliance timeline for permittees. Can you clarify that this paragraph means that once a permittee is issued a new permit following the approval of this rule, that the permittee has 24 months to implement the permanent stormwater management requirements? The timeline is unclear as it relates to passage of the rule and/or issuance of the permit.
- (5)(b) - At the end of sub-paragraph (b), there is reference to “sub-section 4.1.1.” That reference seems to be a reference to a section of an MS4 permit. I think the reference should somehow be changed or re-phrased so that in the end the rule isn’t referring to a section of a permit.
- (6)(b) - The language references “incentives as authorized by paragraph (3) of this rule”; this reference is likely to paragraph 2e.
- (6)(b) - The language references “along with water quality buffers as required by paragraph (5) of this rule”; this reference is likely to paragraph 4.
- (6)(b) - The language states “The process must also include the incentives as authorized by paragraph (3) of this rule ...” As noted in a separate comment, this reference likely should be to paragraph 2e. If this is the case, 2e states “The permanent stormwater management program may allow ...”, but the language in 6b states that the incentives must be included.”
- (6)(b) Please clarify potential conflicting language between Section (6)(b) and Section (3)(a), whereby Section (3)(a) Stormwater Mitigation and Stormwater Fund gives MS4’s the option to develop a stormwater fund and Section (6)(b) Development Project Plan Review, Approval, and Enforcement, second sentence says “ the process must also include incentives as authorized by paragraph (3) of this rule.” Are incentives now required under the proposed rule?

- (6)(c) - Clarify the language regarding when verification of installation of permanent stormwater control measures (SCMs) is required. “Within 90 days of installation” is impractical since different SCMs at a project could be installed at different times, resulting in multiple verification deadlines on the same project. The permittee will likely be unaware of when SCMs are installed. Also, the SCM could be damaged during subsequent construction activity after being verified.
- (7)(b) – the first sentence is an unattainable standard for even the most well-funded and mature stormwater management program (“ensure implementation...of maintenance procedures to sustain pollutant removal efficiency for the life of the project”). This sentence should be re-written to say, “The permittee must develop and implement a program to require on-going maintenance of SCMs consistent with industry standard practice, such as those maintenance practices described in the TN Permanent Stormwater and Design Guidance Manual or approved equivalent.”
- (7)(b)(1) - Maintenance of Permanent Stormwater Control Measure Assets. Clarification is needed regarding the language of SCM inspection requirements. Can the permittee accept five-year inspection reports from the SCM owner (or a P.E./L.A./qualified professional hired by the owner), or is the permittee (or a P.E./L.A./qualified professional hired by the permittee) required to perform inspections every five years?