

# Assessment of Post-Construction Requirements in the North Central Texas Region

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on behalf of the North Central Texas Council of Governments (NCTCOG)*

At the request of the North Central Texas Council of Governments (NCTCOG) and the iSWM Implementation Committee (IIC), Freese and Nichols, Inc. (FNI) conducted an assessment of 20 communities across the North Texas region to determine how post-construction stormwater requirements were being addressed under the current 2007 Phase II Municipal Separate Storm Sewer System (MS4) permit. Only communities that were not known to have adopted the NCTCOG *integrated* Stormwater Management (iSWM™) Criteria Manual for Site Development and Construction (iSWM Manual) were considered for the assessment. It was agreed that the assessment of these communities would remain anonymous.

An effort was made to select communities that appropriately represent the entire NCTCOG region based on population, developed area, regional location, and per capita income. The 99 permitted small MS4 communities within the NCTCOG region were sorted into population ranges that were based on the tiered requirements presented in the Texas Commission on Environmental Quality (TCEQ) draft small MS4 permit of August 2012. The distribution of the NCTCOG communities within each population range was analyzed to determine an appropriate distribution of communities for the assessment. Table 1 shows the distribution of communities in North Central Texas and those selected for the assessment based on their population range.

**Table 1 - NCTCOG communities by population range**

Population Range	Total NCTCOG cities	Cities selected for assessment
< 1,000	7	0
1,000-10,000	36	4
10,000-40,000	30	8
40,000-100,000	14	5
> 100,000	12	3
<b>Total</b>	<b>99</b>	<b>20</b>

The assessments were conducted by FNI and NCTCOG staff and consisted mostly of conference calls or meetings with the community MS4 permit manager, city engineer, public works director, or other staff member who was familiar with post-construction requirements. During these exchanges there were several questions asked in regards to the community's MS4 permit and their efforts to address post-construction requirements. This report documents the findings of those meetings.

## *Goals of the Assessment*

There are two main goals related to this assessment. The first goal is to gain an understanding of the different methods that communities in the NCTCOG region are using to address post-construction stormwater controls. NCTCOG worked closely with stormwater professionals to develop the iSWM Manual as an accepted method for meeting MS4 permit post-construction requirements. There are

currently thirteen (13) communities that have adopted and implemented iSWM plus the City of Dallas, which allows voluntary use of iSWM. Communities that have not adopted iSWM will be required to develop and implement their own ordinances that they believe will meet MS4 permit post-construction requirements. This assessment collected information from various communities who developed and implemented individual post-construction methods.

The second goal of the assessment is to determine why these communities have not chosen to use iSWM and to take any suggestions regarding how the iSWM program could be modified to better suit the needs of these communities back to NCTCOG and the IIC to consider for future implementation.

### *Post-Construction Stormwater Management Methods*

Cities and Towns across North Texas were required under their MS4 permit to address post-construction stormwater management in areas of new development and redevelopment. Minimum Control Measure Number 5 (MCM 5) in the current Phase II TPDES Small MS4 General Permit stated that communities must:

- a. Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for your community;
- b. Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law; and
- c. Ensure adequate long-term operation and maintenance of BMPs.

As part of their Stormwater Management Plan (SWMP), each of the 20 communities in this assessment developed a plan to address the requirements stated for MCM #5. Table 2 provides a summary of the three most common approaches to addressing this requirement and the number of communities in each population range that used the approach in their SWMP.

**Table 2 - Summary of approaches taken in SWMP to address post-construction**

Population Range	iSWM would be considered for adoption	An Individual Post-Construction WQ* Ordinance would be developed and implemented	Existing ordinances would be reviewed and potentially revised to address PC**
1,000-10,000	1	2	1
10,000-40,000	4	2	2
40,000-100,000	0	4	1
>100,000	1	1	1
	6	9	5

\*WQ stands for water quality

\*\*PC stands for post construction

Each community's SWMP was submitted to TCEQ in 2008 for approval. In the time since that submittal many communities changed their methods of addressing post-construction requirements. Table 3 and the text below provide a summary of the assessment findings on how communities chose to meet their post-construction requirements in year 5 of their Phase II MS4 Permit.

Table 3 - Summary of actions taken by communities to meet post-construction requirements

	#1	#2	#3	#4
Population Range	iSWM was Adopted	Non-iSWM Ordinance specifically addresses post-construction WQ	PC WQ explicitly addressed in Drainage Criteria (non-iSWM)	No action taken to address Post-Construction WQ
1,000-10,000	1	1	1	2
10,000-40,000	0	1	2	6
40,000-100,000	0	3	1	1
>100,000	0	0	1	2
	1	5	5	11

NOTE: Two (2) communities performed both action #2 and action #3. As a result, the total of all categories exceeds the total number of cities that were surveyed.

### 1) iSWM was adopted

Six (6) of the communities in this assessment originally planned to consider adoption of iSWM to address MCM #5. However, further inquiry found that only one (1) of the communities has fully adopted the iSWM Manual.

### 2) The community adopted a non-iSWM ordinance that specifically addresses post-construction water quality.

Five (5) communities adopted an ordinance to address post-construction water quality with the general following requirements:

- Requires post-construction stormwater controls for all developments of one acre or larger. The design engineer is charged with the responsibility of verifying the adequacy of BMPs and each development is reviewed on a case-by-case basis.
- Three (3) out of five (5) reference iSWM in their ordinances.
- A specific post-construction ordinance was adopted that requires developers to address post-construction stormwater on developments of one acre or more. The ordinance requires a post-construction stormwater plan to be developed that shows things such as:
  - o An overall site-plan indicating the proposed location of structural controls
  - o A list and description of all proposed BMPs
  - o A list of what pollutants are being addressed on the site including their pre-development and post-development amounts
  - o A list of all structural controls and their pollutant levels according to another source (typically iSWM)
  - o A long-term maintenance agreement
- A post-construction ordinance was adopted that requires all developments of one acre or more to address post-construction water quality but does not provide specific requirements on how to address this item. Four (4) communities indicated that while the requirements are in place through their ordinance, most developments are reviewed on a case by case basis. In some cases, the post construction ordinance references the city's drainage manual for specific guidance but the manual has not yet been updated to include guidance. In other cases, the ordinance references iSWM for guidance.

### **3) The community updated their drainage criteria to explicitly address post-construction water quality**

Five (5) communities updated their drainage standards to address water quality. Three (3) of the drainage manuals that were updated simply directed developers and engineers to the standards provided in the iSWM Technical Manuals. The three (3) communities who reference iSWM in their drainage manuals are in addition to the three (3) communities from Item 2 who referenced iSWM in their ordinances. The two (2) communities who did not reference iSWM developed specific criteria related post-construction stormwater controls that apply to all development and redevelopment in those communities.

### **4) No action taken to specifically address post-construction water quality.**

The assessment determined that approximately eleven (11) communities took no specific actions to address post-construction water quality. In all cases where no action was taken, the community performed a review of existing ordinances and standards and determined that there were already measures to meet the requirement of MCM #5. These measures included the following:

- the presence of a tree preservation ordinance,
- requirements for erosion control and/or pollution prevention during construction,
- open space requirements, and
- landscaping requirements,

While these measures do not explicitly address post-construction stormwater quality, the communities felt that the intent of the requirement was fulfilled.

Five (5) of these nine (11) communities took action to address water quality during construction activities, but did not specifically address post-construction requirements. These communities considered the two interchangeable and believed that by addressing water quality during construction their post-construction requirements were met.

### ***Summary of Actions***

Although only one of the communities actually chose to adopt some form of iSWM, it is clear that iSWM is widely used across the region outside of adoption. Six (6) of the communities indicated that they reference the iSWM manuals in their current standards and seven (7) additional communities said they are still considering iSWM adoption in the future. Many of the communities have paid into the Regional Public Works program for a number of years but still chose to meet TCEQ's requirements for post-construction without using iSWM.

## Deterrents from iSWM and Recommendations for the iSWM Program

After determining the methods that communities were using to address post-construction requirements outside of iSWM, the assessment focused on gathering information from the community leaders on specific deterrents that kept these communities from adopting and implementing the iSWM Manual. Table 4 below shows a summary of the responses received from each community, prioritized based on the number of cities who provided a similar response.

**Table 4 - Common deterrents to adopting iSWM based on 2013 assessment**

Deterrent	Population Range				Total
	1	2	3	4	
	1,000-10,000	10,000-40,000	40,000-100,000	>100,000	
Community does not have staff resources available to proceed with the customization and adoption process	2	5	1	2	10
iSWM requirements are too strict and more comprehensive than existing requirements. Level of detail is not viewed as necessary for community.	3	2		1	6
The iSWM review process would be too cumbersome for current staff	2	3	1		6
iSWM requirements would make community less attractive to developers than neighboring communities	1		1	1	3
iSWM does not offer enough flexibility for re-development		2			2
Community does not have many developments of 1-acre or more	1	1			2
iSWM was not considered because community already had measures in place to address post-construction requirements effectively		1		1	2
Believes that if iSWM is adopted, City will have to return to council for approval of any changes that are made to the program				1	1

The assessment determined that the most common reason for not adopting iSWM is because it was determined by the community to be too cumbersome of a process. Many of these communities actually specified in their SWMP that iSWM would be adopted to meet MCM #5; however, many of the responses indicated that the level of effort and change associated with the adoption process was perceived to be too significant.

The assessment also provided an opportunity for each community to give input or recommendations for the iSWM program that would make the option to adopt iSWM more attractive to their particular jurisdiction. 8 out of 20 communities offered suggestions for improvements to the iSWM program. In general, the suggestions included recommendations to:

- Create a “scaled” version of iSWM for smaller communities.
- Provide a separate Water Quality *only* version of iSWM that can be adopted without adopting the entire manual.
- Provide more guidance for redevelopment for communities who are mostly built out.

- Provide a “refresher” course to remind and/or update the region about the newest iSWM Manual. The assessment determined that there are a significant number of individuals that are unaware or uneducated about the latest update (2009 version) of iSWM. Many are still under the impression that iSWM is in its original form before the document was split to provide a shorter Criteria Manual that can be adopted.
- Encourage and promote the involvement of departments such as the Planning or Maintenance Departments. One community that has implemented a successful post-construction ordinance explained that the involvement of its Planning Department was a crucial component of their program’s success.

Table 5 provides a summary of the suggestions that were provided based on population range.

**Table 5 - Recommendations to improve iSWM based on 2013 assessment**

Recommendation	Population Range				Total
	1 1,000- 10,000	2 10,000- 40,000	3 40,000- 100,000	4 >100,000	
Create a separate "scaled" version of iSWM for smaller communities	2	2			4
Provide a separate Water Quality only version of iSWM that can be adopted	1	2		1	4
Provide more guidance for redevelopment		2			2
Provide a "refresher" course to remind and/or update the region about the newest iSWM Manual		1		1	2
Encourage and promote involvement of departments such as the Planning or Maintenance Departments				1	1