



# Integrated Stormwater Management (iSWM) Subcommittee Meeting

July 8, 2020

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# Welcome and Introductions

- Please use the chatbox to type your name and organization
- The meeting agenda, Presentation and handouts can be located on the iSWM Subcommittee webpage -  
<https://www.nctcog.org/envir/committees/public-works-council/iswm-implementation-subcommittee>


# Task Order 4 updates


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- 5-Year Outreach and Implementation Strategy
- Reorganize/Re-evaluate Site Development Controls
  - See handout
- Provide details and specifications for water quality BMPs
- Guidance on developing a regional detention program
- Detention criteria guidance research
- Re-evaluate 85th Percentile (1.5") Rainfall Requirements

# Task 2 – Reorganize/Re-evaluate Site Development Controls

- Completed Summary Pages from Task Order 3
  - Bioretention
  - Dry Detention Pond
  - Permeable Pavement
  - Sand Filter
  - Underground Detention





**Bioretention**

**Description**  
Bioretention facilities, sometimes called rain gardens or bioretention filters, are vegetated basins or landscaped areas that capture stormwater runoff and provide filtration and treatment using engineered filter media. Bioretention areas are flexible per the needs of most site locations.

**Design Considerations**

- Consists of a grass filter, a sand bed, stormwater ponding area, an organic/mulch layer, planting soil, and selected landscaping for vegetation
- The facility works on any soil group
- Can be designed with an underdrain to send treated water into an outlet
- Use native plants as recommended
- Can be designed in-line or off-line
- Requires a footprint of 5-7% of the tributary impervious area

**Key Advantages**

- They are highly effective at removing pollutants and reducing peak flow storm events for small storms
- Bioretention areas work well in areas with a small drainage area (recommended for between 2 and 5 acres)
- Bioretention facilities can handle large amounts of impervious areas
- Bioretention areas have relatively low maintenance requirements
- Due to their incorporation of landscaping, bioretention facilities can be used as an aesthetic feature


**Limitations**

- Landscaping of bioretention facilities in public areas must be maintained to prevent overgrowth
- Bioretention areas cannot be used in areas with steep slopes
- Bioretention areas are not designed to manage peak flows from large storm events


**Removal Rate**

Target Constituent	Removal Rate (0% to 100%)
Total Suspended Solids	~95%
Total Phosphorus	~85%
Total Nitrogen	~75%
Fecal Coliform	Insufficient data
Heavy Metals	~65%


**Implementation Considerations**



MEDIUM  
Land Requirement




MEDIUM  
Capital Cost




LOW  
Maintenance Burden


**Suitability**  
The ISWM manual has designated that bioretention facilities are suitable for providing:



Water Quality Protection



Streambank Protection\*



On-site Flood Control\*

\*In certain situations

**Maintenance**

- Trash, leaf, debris and sediment removal
- Weeding/removing unwanted vegetation
- Replacing dead and dying vegetation
- Raking and replacing the top mulch layer
- Irrigating plants after planting and during the dry season
- Replace soil media on an as-needed basis
- Clean inlet and outlet pipes when required
- Repair eroded locations

# Task 2 – Reorganize/Re-evaluate Site Development Controls

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- Action items based on feedback from Task Order 3 Workshops
  - Update of remaining BMP summary pages
  - Rework of introduction of manual
  - Reorganization/categories
  - Addition of new BMPs
  - Addition of the vegetation list
  - Addition of specifications or design check lists
  - Recommendations of public signage and certification/training received

## Recommend Updating the following Summary Pages:

- Enhanced Swales
- Grass Channel
- Filter Strip
- Planter Boxes
- Downspout Dry well
- Infiltration Trench
- Rainwater Harvesting
- Stormwater Wetlands
- Stormwater Ponds
- Porous Concrete

# Tasks 3, 4, 5

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- **Task 3 – Guidance on developing a regional detention program**
  - Provide data on methods to set up a public/private partnership
  - Provide recommendations on when/where regional detention is most appropriate
- **Task 4 – Detention criteria guidance research**
  - Research natural channel and volumetric detention guidance in existing criteria manuals to see where iSWM could be improved.
- **Task 5 – Detention Re-evaluate 85th Percentile (1.5”) Rainfall Requirements**
  - Review rainfall depths and percentiles that other Texas cities are using to treat water quality.
  - Use updated rainfall data to calculate regional percentile storm events.

# Task 6 – 5-year Implementation And Outreach Strategy

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- **Part A** – 2-hour training for design and maintenance of BMPs
- **Part B** – Outreach & Implementation Strategy
  - Clarify the program's strengths
  - Set goals
  - Identify challenges
  - Formulate a strategy for the program's next 5 years.

## First steps:

- Interviews with Public Works Council, iSWM Communities, Developers, etc.
- Case Studies
- Develop marketing tools

# Task 7 – Provide details and specifications for water quality BMPs

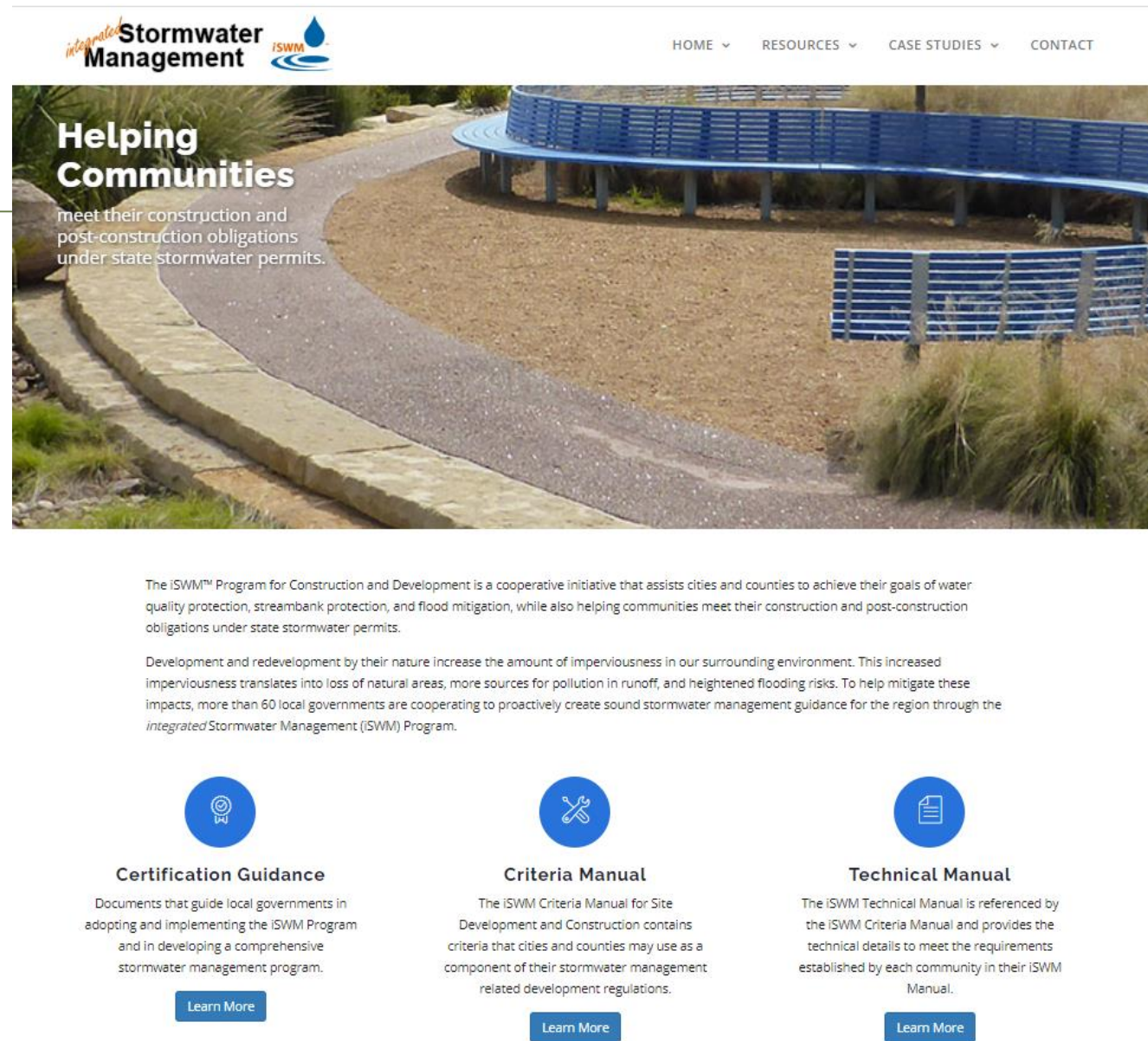
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- Provide details and specifications for up to 5 water quality, filtration and infiltration BMPs from the Site Development Controls.
- Prioritization of BMPs
  - Bioretention
  - Enhanced Swale
  - Filter Strip
  - Organic Filter
  - Planter Boxes
  - Sand Filter
  - Underground Sand Filter
  - Downspout Dry Wells
  - Infiltration Trench
  - Soakage Trench



# Informational Items: Website updates

- Updates were made to the iSWM landing page. <http://iswm.nctcog.org/>
- Updated Hydrology manual: [http://iswm.nctcog.org/Documents/technical\\_manual/Hydrology\\_4-2020.pdf](http://iswm.nctcog.org/Documents/technical_manual/Hydrology_4-2020.pdf)



**integrated Stormwater Management ISWM**

HOME ▾ RESOURCES ▾ CASE STUDIES ▾ CONTACT

## Helping Communities

meet their construction and post-construction obligations under state stormwater permits.

The ISWM™ Program for Construction and Development is a cooperative initiative that assists cities and counties to achieve their goals of water quality protection, streambank protection, and flood mitigation, while also helping communities meet their construction and post-construction obligations under state stormwater permits.

Development and redevelopment by their nature increase the amount of imperviousness in our surrounding environment. This increased imperviousness translates into loss of natural areas, more sources for pollution in runoff, and heightened flooding risks. To help mitigate these impacts, more than 60 local governments are cooperating to proactively create sound stormwater management guidance for the region through the *integrated* Stormwater Management (iSWM) Program.

**Certification Guidance**

Documents that guide local governments in adopting and implementing the iSWM Program and in developing a comprehensive stormwater management program.

[Learn More](#)

**Criteria Manual**

The iSWM Criteria Manual for Site Development and Construction contains criteria that cities and counties may use as a component of their stormwater management related development regulations.

[Learn More](#)

**Technical Manual**

The iSWM Technical Manual is referenced by the iSWM Criteria Manual and provides the technical details to meet the requirements established by each community in their iSWM Manual.

[Learn More](#)

# Informational Item: Draft BMP Installation and Maintenance Video

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Click [here](#) to view the video.

# Informational Items: Updated Implementation Tiered Measurement form

- We discussed changes at the April 27th meeting. The iSWM subcommittee recommended that those who apply for Gold must support the Regional Public Works Council.
- The Public Works Council approved the updates to the Implementation Tiered Measurement form at their May 7th meeting.

## North Central Texas Council of Governments iSWM PROGRAM IMPLEMENTATION TIERED MEASUREMENT

SUBMITTING COMMUNITY: \_\_\_\_\_

Requirements for Implementation Levels			
Outcome Category	Gold	Silver	Bronze
Mandatory	11 full application	10 full or partial application	10 full or partial application
Recommended	7 full application	7 full or partial application	4 full or partial application
Optional	3 full or partial application		

Note: The following outcomes apply to land disturbing activities of 1 acre or more for water quality and streambank protection, and apply to all land disturbing activities for flood mitigation and conveyance.

#	Outcome	CHECK COMMUNITY'S LEVEL OF APPLICATION			Full Application	iSWM Criteria Manual Ref.	Equivalent Local Criteria/Ordinance Reference
		N/A	Partial	Full			
<b>MANDATORY OUTCOMES</b>							
1	Site Plan Review Applicability				Stormwater requirements discussed at a pre-development/pre-application meeting or equivalent (Concept iSWM)	Section 2.2, Step 3	
2	Land Use Conditions				Design stormwater infrastructure to fully-developed (built-out) land use conditions	Section 3.6.1	
3	Hydrologic Methods				Limit Rational Method applicability to drainage areas of 100 acres or less and utilize frequency factors (per TM HO Table 1.4); Limit Modified Rational Method applicability to drainage areas of 200 acres or less; For larger areas, require Unit Hydrograph methodology	Section 3.1 Table 3.2; TM HO Section 1.2*	
4	Open Channel Velocity Criteria/Energy Dissipation				Require maximum permissible channel velocity criteria be met and/or use erosion control measures for 1-, 25-, and 100-yr or similar storm events to protect receiving drainage element from erosion	Section 3.6.3, Table 3.10 and 3.11	
5	Detention Structure Discharge Criteria				When a detention structure is utilized, design facility for fully-developed 1-, 25-, and 100-yr or similar storm events matching pre-development peak flows and velocities; Provide emergency spillway with 6 inches of freeboard to convey fully-developed 100-yr storm event assuming outlet blockage	Section 3.6.3, Detention Structures	
6	Streambank Protection				Require downstream stabilization to prevent erosive velocities; maintain existing downstream velocity conditions with on-site controls; and/or control fully-developed 1-yr, 24-hr storm event release over 24 hours to prevent erosive velocities	Section 1.3, Table 1.3; Section 3.4	
7	Flood Mitigation				Require adequate downstream conveyance for peak discharges; maintain existing downstream peak discharge conditions with on-site controls; and/or provide detention to pre-development peak discharge conditions	Section 1.3, Table 1.3; Section 3.5.2	
8	Construction Controls				Limit erosion and the discharge of sediment and other pollutants from construction sites by adhering to the integrated Construction Criteria or Construction General Permit	Section 4.0	
9	Operations and Maintenance				Define responsible party and requirements for operation, maintenance, frequency of inspection, and enforcement of temporary and permanent stormwater controls and drainage facilities	Section 2.2, Step 5	
10	Downstream Assessments				Confirm no negative impact or mitigate negative impacts of peak discharges and velocities for 1-, 25-, and 100-yr or similar storm events	Section 3.3; TM HO Section 2.4*	
11	Supports Regional Public Works initiatives				The community must be annual cost-share contributor to the Regional Public Works program that provides funding to sustain the iSWM program. (**Required for gold certification applicants and encouraged for bronze and silver***)		
<b>TOTALS</b>							

# Informational Items: Public Works Program Update

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- The Public Works Roundup has been postponed to Sept. 17, 2020. If you are interested in presenting or sponsoring please contact Olivia Kale at [okale@nctcog.org](mailto:okale@nctcog.org) or (817) 695-9213.
- Cost share invoices will be mailed out to all communities in the region on Oct 1, 2020. It's not mandatory to pay but gives everyone the opportunity to participate.
- The Standards Drawings Subcommittee is starting to comment on Division 4000: Water Distribution. If you are interested in joining the group, please contact Olivia Kale at [okale@nctcog.org](mailto:okale@nctcog.org) or (817) 695-9213.
- The Sustainable Public Rights-of-Way (SPROW) Subcommittee began virtual meetings. They are creating a form-based tree list for the region that will help identify what trees will grow best in certain situations on the ROW. If you are interested in joining the group, please contact Olivia Kale at [okale@nctcog.org](mailto:okale@nctcog.org) or (817) 695-9213.

# Upcoming Events and Conferences

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## **Post Construction Inspection Roundtable**

WebEx - July 22, 2020

Link: <https://nctcog-agency.webex.com/nctcog-agency/onstage/g.php?MTID=ed7524819b4a32d9e3ce73b9c5dd99f4a>

Call-in information: +1-415-655-0002, Access code: 127 055 0792

## **Public Works Roundup**

Richardson Convention Center – Richardson TX - Sept. 17, 2020

Registration: The link will be shared at a later date

## **2020 EPA Region 6 Virtual Stormwater Training**

Virtual - August 11-13, 2020

Registration :

[https://moneyconnect.tamuk.edu/C20209\\_ustores/web/store\\_main.jsp?STOREID=295](https://moneyconnect.tamuk.edu/C20209_ustores/web/store_main.jsp?STOREID=295)

# ROUNDTABLE DISCUSSION

NOW, IT'S YOUR TURN...

# Upcoming NCTCOG Meetings

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## Next iSWM Meeting

October 7, 2020

1:30 p.m.

- Public Works Council Standard Drawings Subcommittee, **July 6**
- Public Works Council Sustainable Public Rights of Way, **July 21**
- Regional Stormwater Management Council, **August 19**
- Public Works Council Meeting, **August 20**

Meeting Information at: <https://www.nctcog.org/envir/committees>

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