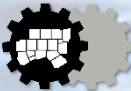


# Integrated Stormwater Management (iSWM) Subcommittee Meeting

January 13, 2021

Staff contact - Sydni Ligons



# OVERVIEW OF JANUARY 13, 2021 MEETING AGENDA

1. Welcome and Introductions
2. Approval of October 7, 2020, [Meeting Summary](#)
3. Update of Task Order 4 progress (Work Scope). Presented by iSWM contractor
4. Discuss possible contract extension with iSWM contractor
5. Subcommittee Roster Updates.
6. Regional Public Works Program Update.
7. Upcoming Events and Conferences.
8. Future Agenda Items and Roundtable Discussion.

# WELCOME AND INTRODUCTIONS

- The meeting agenda, presentation and handouts are located on the iSWM Subcommittee webpage - <https://www.nctcog.org/envir/committees/public-works-council/iswm-implementation-subcommittee>

# SUMMARY OF TASKS FROM ISWM 2020 TASK ORDER 4

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- Task 1 – Project Management and Meeting Attendance
- Task 2 – Reorganize/Re-evaluate Site Development Controls
- Task 3 – Guidance on developing a regional detention program
- Task 4 – Detention criteria guidance research
- Task 5 – Re-evaluate 85th Percentile (1.5”) Rainfall Requirements
- Task 6 – 5-Year Outreach and Implementation Strategy
- Task 7 – Provide details and specifications for water quality BMPs



## TASK 2 – REORGANIZE/RE-EVALUATE SITE DEVELOPMENT CONTROLS

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- Bioretention
- Sand Filter
- Downspout Drywell
- Stormwater Ponds
- Dry Detention Pond
- Stormwater Wetlands
- Enhanced Swales
- Underground Detention
- Filter Strip
- Grass Channel
- Infiltration & Soakage Trench
- Permeable Pavement
- Planter Boxes
- Porous Concrete
- Rainwater Harvesting

### SUMMARY PAGES WERE PROVIDED FOR REVIEW

- Reformatted to be more readable/appealing
- Clearly communicate use, limitations, etc.
- Use of better pictures to convey how BMP can add value to a site

Click [HERE](#) to view document





# TASK 2 – REORGANIZE/RE-EVALUATE SITE DEVELOPMENT CONTROLS

Please provide written feedback by Feb 1<sup>st</sup>

Old Summary Page

## 22.0 Stormwater Ponds

Stormwater Control



**Description:** Constructed stormwater retention basin that has a permanent pool (or micropool). Runoff from each rain event is detained and treated in the pool primarily through settling and biological uptake mechanisms.

### KEY CONSIDERATIONS

#### DESIGN CRITERIA:

- Minimum contributing drainage area of 25 acres; 10 acres for extended detention micropool pond
- A sediment forebay or equivalent upstream pretreatment must be provided
- Minimum length to width ratio for the pond is 1.5:1
- Maximum depth of the permanent pool should not exceed 8 feet
- Vegetated side slopes to the pond should not exceed 3:1 (h:v)

#### ADVANTAGES / BENEFITS:

- Moderate to high removal rate of urban pollutants
- High community acceptance
- Opportunity for wildlife habitat

#### DISADVANTAGES / LIMITATIONS:

- Potential for thermal impacts/downstream warming
- Dam height restrictions for high relief areas
- Pond drainage can be problematic for low relief terrain

#### MAINTENANCE REQUIREMENTS:

- Remove debris from inlet and outlet structures
- Maintain side slopes / remove invasive vegetation
- Monitor sediment accumulation and remove periodically
- Dam inspection and maintenance

### POLLUTANT REMOVAL

80%	Total Suspended Solids
50/30%	Nutrients - Total Phosphorus / Total Nitrogen removal
50%	Metals - Cadmium, Copper, Lead, and Zinc removal
70%	Pathogens - Coliform, Streptococci, E.Coli removal

### STORMWATER MANAGEMENT SUITABILITY

- P Water Quality Protection
- P Streambank Protection
- P On-Site Flood Control
- P Downstream Flood Control

### IMPLEMENTATION CONSIDERATIONS

- L Land Requirement
- L Capital Cost
- L Maintenance Burden

Residential Subdivision Use: Yes

High Density/Ultra-Urban: No

Drainage Area: 10-25 acres min.

Soils: Hydrologic group 'A' and 'B' soils may require pond liner

Other Considerations:

- Outlet Clogging
- Safety Bench
- Landscaping
- Hotspot areas

L=Low M=Moderate H=High

New Summary Page

## Stormwater Ponds

### Description

Stormwater ponds are constructed retention basins that contain a permanent pool or micropool. Stormwater runoff is detained in the ponds, and treatment is achieved through settling and biological uptake mechanisms. Stormwater ponds are also called retention ponds, wet ponds, or wet excavation detention ponds.

### Design Considerations

- Stormwater ponds are good solutions for large drainage areas. Maximum drainage areas are 25 acres, 10 acres for the micropool.
- Upstream treatment (such as a sediment forebay or equivalent) is required.
- Permanent pools should not exceed 8 feet in depth.
- Temporary storage can be provided above the permanent storage for larger storm events.
- Vegetated side slopes are required and must be no steeper than 3:1.
- Ponds located in areas with high infiltration rates will require a pond liner to keep the permanent pool.
- Ponds can require a larger area than other stormwater facilities, but can treat large areas as well.

### Key Advantages

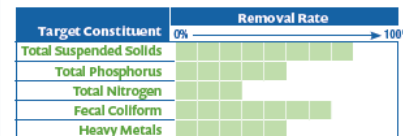
- Urban pollutants are removed at a moderate to high rate.
- Stormwater ponds can be considered amenities and generally have a high rate of community acceptance.
- Ponds provide an opportunity for wildlife habitat.
- Stormwater ponds are among the most cost-effective facilities and are widely used.
- Multiple ponds can be used in series. The series provides improved downstream protection and longer pollutant removal pathways.

### Limitations

- High relief areas have dam height restrictions that need to be examined during design.
- Low relief terrain may cause poor drainage.
- Ponds may cause thermal impacts and downstream warming of stormwater.
- Fecal coliform removal rate decreases if waterfowl are present.
- Mosquito and other vectors may require treatment.



Stormwater Pond In San Antonio, TX. (Source: Terra Tech)



### Implementation Considerations



### Suitability

The iSWM manual has designated stormwater ponds as suitable for providing:



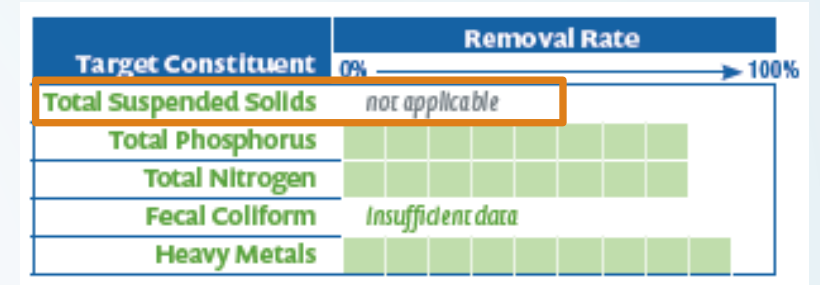
### Maintenance

- Debris needs to be removed from inlet and outlet structures.
- Invasive vegetation should be removed.
- Sediment accumulation and erosion should be monitored and remedied when issues arise.
- If dams are required, inspection and maintenance must be performed.
- Monitor for illegal dumping.
- Mosquito control and rodent repair may be required.

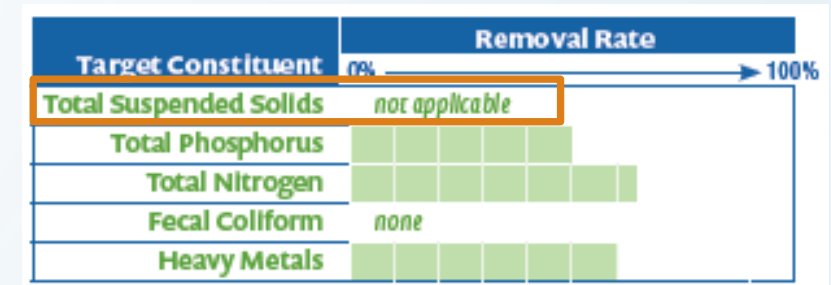
# DISCUSSION TOPIC FOR SUMMARY PAGES

- iSWM Technical Manual
  - does not provide removal efficiency for sediment removal due to maintenance concerns (Table 1.2)
- Multiple studies shows they can significantly reduce sediments (as much as 80 percent)
- If updated on fact sheets, it would require update to technical manual
- Question: Would the subcommittee like to discuss the possibility of revising the technical manual to provide TSS removal efficiency for Permeable Pavement and Porous Concrete?

## Permeable Pavement



## Porous Concrete





# TASK 3 – GUIDANCE ON DEVELOPING A REGIONAL DETENTION PROGRAM

- Considerations for regional detention site locations
- Water Quality Considerations
- Potential Funding Options
- Implementation of a regional program
- Additional considerations
  - Zoning
  - High Hazard Dams
  - Downstream Impacts
  - Emergency Action Plans



Please  
provide  
written  
feedback by  
**Feb 1<sup>st</sup>**

Click [HERE](#) to view document.





# TASK 4 – DETENTION CRITERIA GUIDANCE RESEARCH

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- Comparison of standard of practice
- National: Releasing post-development 2-year, 24-hour storm over a 24-hour period
- iSWM: Releasing post-development 1-year, 24-hour storm over a 24-hour period
- Effectiveness of design criteria depends on physical channel condition of materials
- iSWM criteria is effective in conjunction with additional measures – watershed detailed dynamic modeling and hazard erosion setbacks
- No change is recommended to iSWM Standard at this time

Includes a summary of practices for:

- Austin
- San Antonio
- Fayetteville
- Tulsa
- Little Rock
- Harris County

Please  
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**Feb 1<sup>st</sup>**

Click [HERE](#) to view document.



# TASK 5 – RE-EVALUATE 85<sup>TH</sup> PERCENTILE (1.5”) REQUIREMENTS

- **Current iSWM methodology:** 85<sup>th</sup> percentile 24-hour rainfall depth
  - 85<sup>th</sup> percentile 24-hour rainfall depth
  - Rainfall depth of 1.5-inches, WQ run-off depth is 1.43-inches
- **Revised WQCV Methodology**
  - Considered 30-years of hourly rainfall data from National Climactic Data Center (NCDC) stations.
  - Used the Urban Watersheds Research Institute (UWRI) Water Quality Capture Optimization and Statistics Model (WQ-COSM)
  - Sensitivity check for various inputs
    - Dry period of separation between storms, Minimum storm depth needed for run off, WQCV basin emptying time, Drying period
- **Comparison to 85th percentile 24-hour rainfall depth at Meacham**
  - Rainfall depth is 1.2-inches , WQ run-off depth is 1.14-inches  
(based on NCDC data between 1940 to 2013)

Please  
provide  
written  
feedback by  
**Feb 1<sup>st</sup>**

# TASK 5 – RE-EVALUATE 85<sup>TH</sup> PERCENTILE (1.5") REQUIREMENTS

- **Results of Revised methodology**

- Volume Capture and Storm Capture between 80-90%
- Optimal WQCV basin size at Meacham Airport location
  - 0.95-inches (based on runoff volume capture)
  - 0.88-inches (based on storm events capture)

- **Conclusion**

- iSWM method results in a higher volume capture requirement
- Optimal capture volume calculated using WQ-COSM are slightly lower than those calculated using the iSWM equations
- *Requesting feedback on the technical approach and conclusions of the memorandum. Implementation of any changes will be discussed at a later meeting, if necessary.*

Please  
provide  
written  
feedback by  
**Feb 1<sup>st</sup>**

Click [HERE](#) to view document.







# TASK 6 – 5-YEAR OUTREACH AND IMPLEMENTATION STRATEGY

- **iSWM Promotion**
  - Enhance iSWM marketing materials and tools to highlight benefits of iSWM
- **Community Engagement**
  - Engage all members of the community with the goal of increasing participation and understanding
- **Technical Support & Training**
  - Support communities that are involved with or interested in the program
- **Technical Content**
  - Enhance technical materials



# TASK 6 – 5-YEAR OUTREACH AND IMPLEMENTATION STRATEGY

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- 5-year plan tasks
  - Each category as associated tasks listed in outline
  - 38 tasks total
  - Tasks are broken out by year to be used as a scope each year for the subcommittee
  - Estimated budgets for each task to be added



**Check out spreadsheet of tasks by clicking icon above**



# TASK 6 – 5-YEAR OUTREACH AND IMPLEMENTATION STRATEGY

- Next Steps
  - High level outline provided prior to subcommittee meeting today
  - Please provide written feedback on tasks in the outline by **February 1<sup>st</sup>**
  - Draft report to be submitted to COG by **February 1<sup>st</sup>**
  - Presentation to Public Works Council on **February 18<sup>th</sup>**

Click [HERE](#) to view document



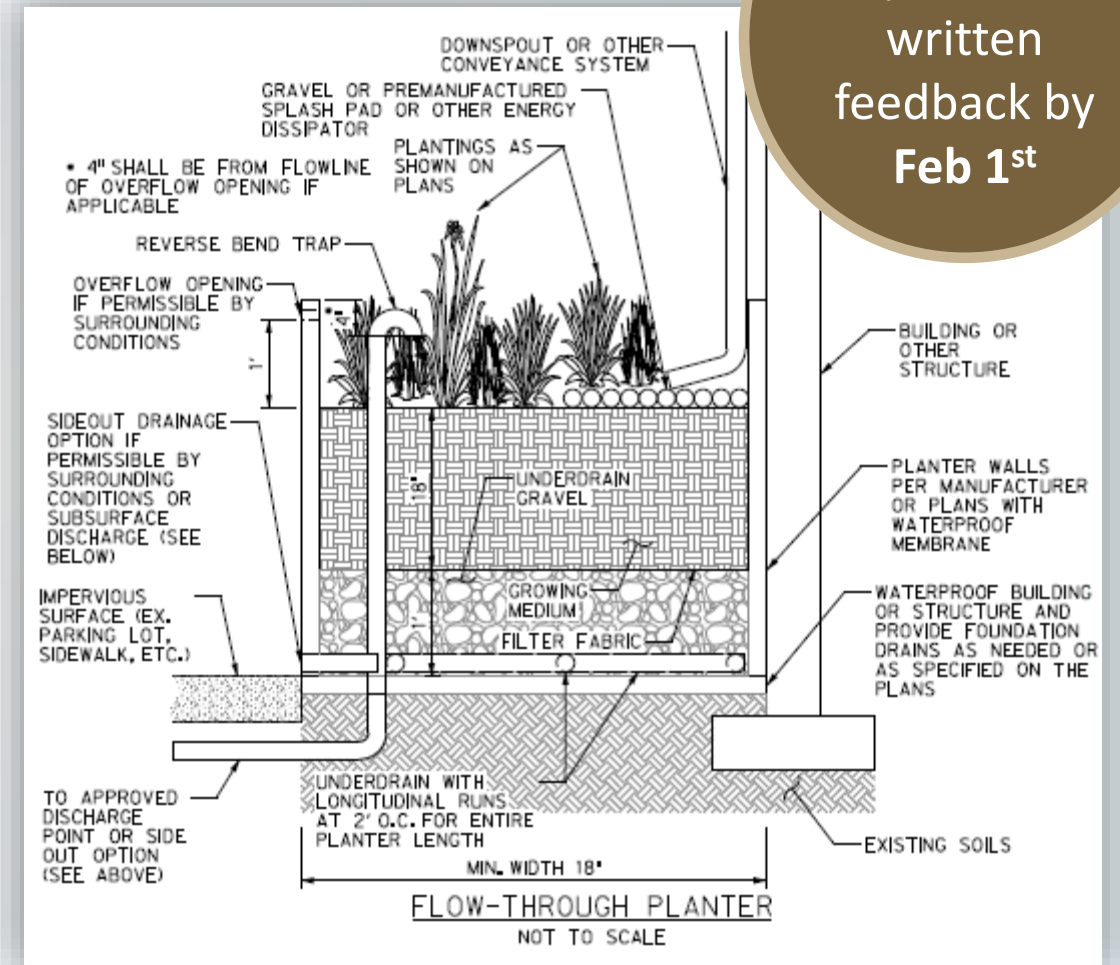
Please  
provide  
written  
feedback by  
**Feb 1<sup>st</sup>**



# TASK 7 – WATER QUALITY BMPS DETAILS AND SPECIFICATIONS

- Draft details & specifications for:
  - Bioretention
  - Enhanced Swale
  - Planter Boxes
  - Sand Filter
  - Infiltration Trench
- Discussion - Where will the details be published and how will the details be used?

Click [HERE](#) to view details and [HERE](#) to view specifications.



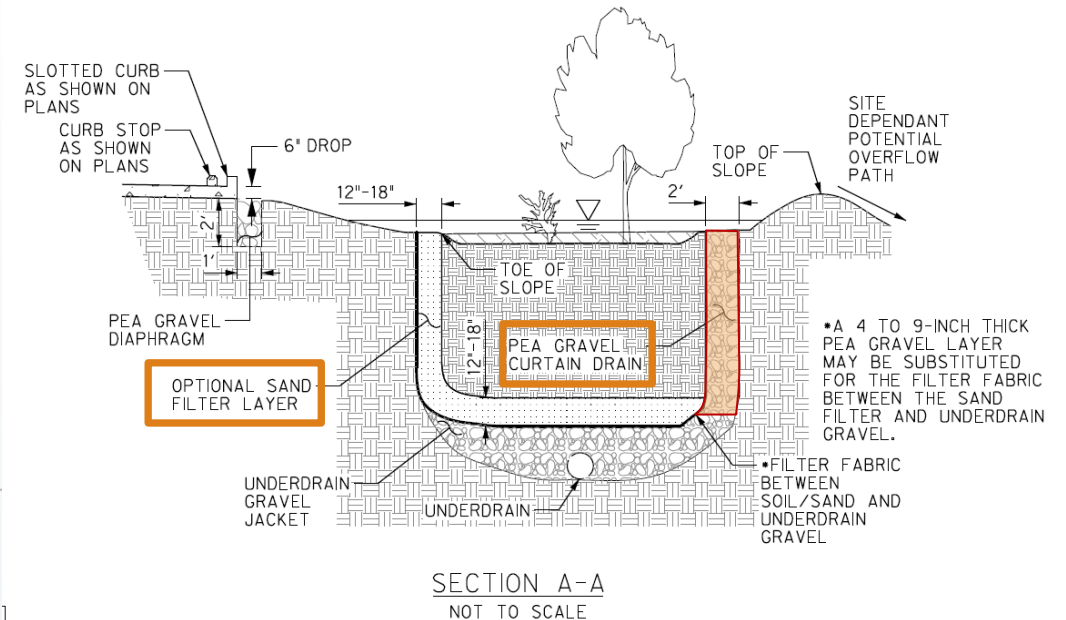
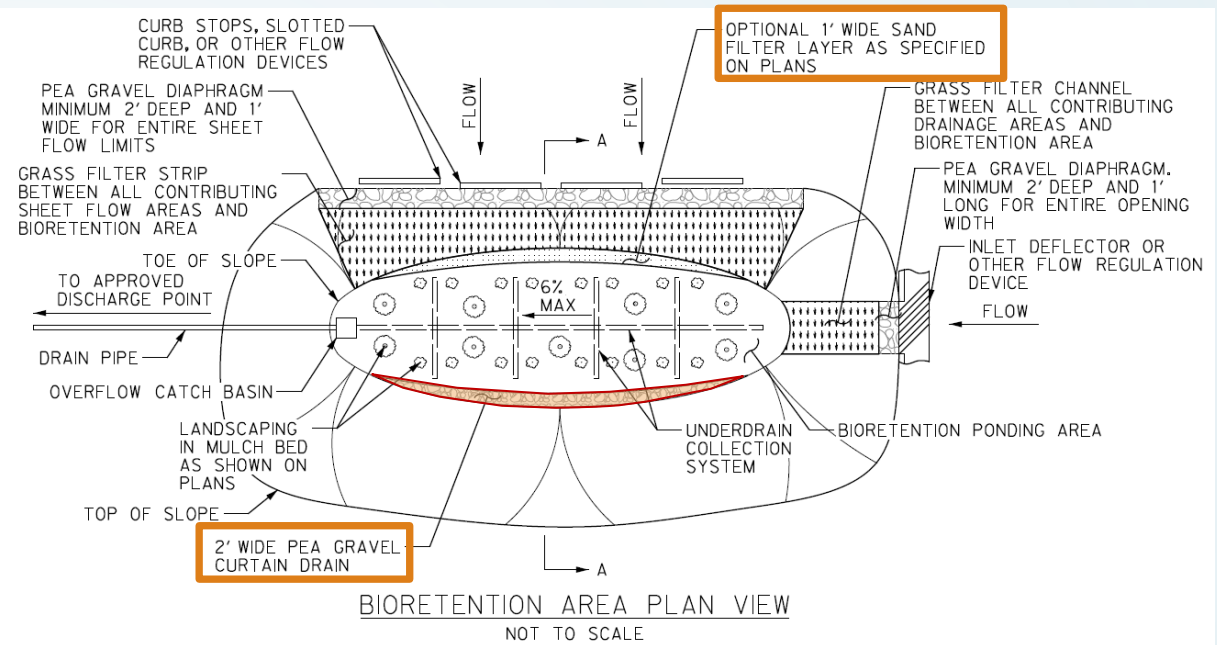
Please provide written feedback by **Feb 1<sup>st</sup>**





# DISCUSSION TOPIC FROM DETAILS AND SPECS

- Pea gravel curtain and optional sand filter layer for bioretention
- Concerns from review:
  - Difficult to construct
  - May cause ponding in bioretention area to prematurely go to the underdrain
- Discussion:
  - Should pea gravel curtain and/or sand filter be shown in the details?
  - Should it be left as an option in the iSWM Technical manual?



# NEXT STEPS FOR DOCUMENTS IN ISWM TASK ORDER 4

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- Please provide written feedback to Sydni Ligons at [sligons@nctcog.org](mailto:sligons@nctcog.org) by **Feb 1<sup>st</sup>, 2021**
- Looking to finalize documents below at the next meeting, **April 22, 2021**
  - Task 2 Reorganize/Re-evaluate Site Development Controls
  - Task 3 Guidance on developing a regional detention program
  - Task 4 Detention criteria guidance research
  - Task 5 Re-evaluate 85th Percentile (1.5") Rainfall Requirements
  - Task 6 5-Year Outreach and Implementation Strategy
  - Task 7 Provide details and specifications for water quality BMPs
- Documents posted to iSWM website by **June 1, 2021**

# ISWM CONTRACT EXTENSION WITH HALFF

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The task order contract is for an initial three (3) year contract with two (2) **optional** one (1) year renewals. Task Order No. 4 contract will expire on April 30, 2021. The subcommittee has the option to renew this contract for one(1) year.

NCTCOG staff and Halff have provided input on future tasks listed here.

## **Next steps:**

- iSWM Subcommittee Recommendation to PWC to extend contract for second (1) one year renewal.
- Discuss additional tasks to be included in the workplan for Task Order 6
  - View task list [HERE](#)
    - Additional task suggestions can be sent to [sligons@nctcog.org](mailto:sligons@nctcog.org)
- Work scope to be finalized at the April 2021 meeting.

# ISWM IMPLEMENTATION SUBCOMMITTEE (IIS) ROSTER STRATEGIES UPDATE

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## **Strategies for increasing roster members.**

1. Inviting communities that were part of the founding members to attend IIS meetings or send a representative.
2. Request iSWM Certified Communities join the roster.
3. Have those that attend IIS meetings consistently join the roster.

## **Actions taken**

- Researched appropriate contact from founding member communities and certified communities.
- Contacted 15 communities to invite them to join the iSWM Subcommittee.

## **Next Steps**

- Continue outreach efforts by staying in contact with the founding and certified communities.
- Follow the 5-year Outreach and implementation strategy plan to increase awareness of iSWM and iSWM principals in the North Central Texas region.



# PUBLIC WORKS PROGRAM UPDATE

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- [Sustainable Public Rights-of-Way Subcommittee](#) (SPROW), Jan. 18<sup>th</sup> 1:30pm
  - SPROW will be discussing ROW BMPs with franchise utility representatives.
- [Standard Drawings Subcommittee](#), Jan. 25<sup>th</sup> 10am
  - The Subcommittee will begin reviewing Division 5000: Wastewater Collection.
- [Public Works Council](#) (PWC), Feb. 18<sup>th</sup> 9:30am
  - The PWC will review 2 divisions that were completed by the Standard Drawings Subcommittee and discuss plans for the next Public Works Roundup.

Regional Public Works Program Cost-Shares were mailed out to every community in the region on Oct. 1, 2020 to give them the opportunity to participate. If you did not receive your cost-share, please contact Olivia Kale at [okale@nctcog.org](mailto:okale@nctcog.org) or (817) 695-9213.

# UPCOMING EVENTS, CONFERENCES AND OPPORTUNITIES

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- **Legislative Preview Webinar: What to Expect This Session**, January 14, 2021 at 10:30 -11:30 am
  - For more information and to register, please visit <https://tmllegislativeseries.org/registration/>
- **2021 Urban Riparian Symposium**, February 10 -12, 2021, Virtual
  - For more information and to register, please visit <https://texasriparian.org/2021-urban-riparian-symposium/>
- **Texas PWA 2021 Conference**, May 25 – 27, 2021 in Galveston , TX
  - For more information, please visit <http://texas.apwa.net/EventDetails/18880>
- **The Five Star and Urban Waters Restoration Grant** - develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships focused on improving water quality, watersheds and the species and habitats they support.
  - Full Proposal Due Date: **January 28, 2021 by 11:59 PM Eastern Time**

# ROUNDTABLE DISCUSSION

NOW, IT'S YOUR TURN...

# UPCOMING NCTCOG MEETINGS

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**Next iSWM Meeting:** April 22, 2021 at 1:30 p.m.

- Public Works Council Sustainable Public Rights of Way, **January 18, 2021**
- Public Works Council Standard Drawings Subcommittee, **January 25, 2021**
- Regional Stormwater Management Council, **February 17, 2021**
- Public Works Council Meeting, **February 18, 2021**

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



# Contact

## **Sydni Ligons**

Environment & Development Planner  
North Central Texas Council of Governments  
[sligons@nctcog.org](mailto:sligons@nctcog.org)  
817.608.2360

## **Carolyn Horner**

Senior Environment & Development Planner  
North Central Texas Council of Governments  
[chornor@nctcog.org](mailto:chornor@nctcog.org)  
817.695.9217

## **Edith Marvin**

Director of Environment & Development  
North Central Texas Council of Governments  
[emarvin@nctcog.org](mailto:emarvin@nctcog.org)  
817.695.9211

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EandD@nctcog.org



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