



**STORMWATER MANAGEMENT COMMISSION**

We hope to see you at the next TAC meeting on **Thursday, September 19, 2019** at 9:00 AM.

The meeting will be held at:

**Lake County Central Permit Facility**  
500 W. Winchester  
Second Floor - Large Conference Room  
Libertyville, IL 60048

**Meeting Topics:**

- Continue discussion on stormwater detention options and site impacts. Including Foxconn analysis (CBBEL)
- Curve number reductions for green infrastructure and runoff volume control practices (MWRDGC)
- Begin WDO amendments.
- Presentation slides are available for download at:  
<https://www.lakecountyil.gov/2338/Standing-Advisory-Committees>



STORMWATER MANAGEMENT COMMISSION

**TECHNICAL ADVISORY COMMITTEE  
AGENDA**

**September 19, 2019**

**9:00 AM – 12:00 PM**

**500 W. Winchester, Libertyville, Illinois**



- 1.0 CALL TO ORDER
- 2.0 ADDITIONS TO THE AGENDA
- 3.0 PUBLIC COMMENT
- 4.0 STAFF REPORT
- 5.0 APPROVAL OF THE MINUTES
  - 5.1 August 15, 2019 Minutes  
Action Requested: APPROVAL
- 6.0 OLD BUSINESS
  - 6.1 Foxconn Site-Specific Detention Analyses  
Presentation by Christopher B. Burke Engineering  
Action Requested: IMPACT DETERMINATION
  - 6.2 WMO Composite Curve Number Reduction for Volume Control Practices  
Update on Unit Area Detention Sizing Charts  
Presentation by Metropolitan Water Reclamation District of Greater Chicago  
Action Requested: USE IN LAKE COUNTY
  - 6.3 WDO Amendment #1a – Appendix I: Rainfall Depth Duration Frequency Table  
Action Requested: APPROVAL
  - 6.4 WDO Amendment #1b – Appendix I: Huff Rainfall Distributions  
Action Requested: NONE, AWAITING ISWS 2<sup>ND</sup> REPORT
  - 6.5 WDO Amendment #2 – 507.01.B. Emergency Overflow Top of Impoundment  
Action Requested: APPROVAL
  - 6.6 WDO Amendment #3 – NEW 509.04 Fee-In-Lieu for Volume above 50-year  
Action Requested: APPROVAL
  - 6.7 WDO Amendment #4 – NEW Des Plaines River Mainstem FPE  
Action Requested: APPROVAL
  - 6.8 WDO Amendment #5 – 302.02 Exempted Developments  
Action Requested: APPROVAL

CONTINUED

- 6.9 WDO Amendment #6 – 501.06 Developed Soil HSG  
Action Requested: APPROVAL
- 6.10 WDO Amendment #7 – 501.07 NEW/CLARIFICATION Native Plantings Incentive  
Action Requested: APPROVAL
- 7.0 NEW BUSINESS
  - 7.1 NONE
- 8.0 ADJOURNMENT

## Technical Advisory Committee

<p><b>James Anderson</b> (Term Expires May 2020) Director of Natural Resources LC Forest Preserve District 1899 W. Winchester Rd. Libertyville, IL 60048 Phone: 847-968-3282 Fax: 847-367-6649 Email: janderson@lcfpd.org</p>	<p><u>Alternates</u> <b>John Nelson</b> Director of Operations &amp; Infrastructure LC Forest Preserve Dist. 19808 W. Grand Avenue. Lindenhurst, IL 60046 Phone: 847-968-3407 Fax: 847-367-6649 Email: jnelson@lcfpd.org</p> <p><b>Ken Klick</b> Restoration Ecologist LC Forest Preserve Dist. 1899 W. Winchester Rd. Libertyville, IL 60048 Phone: 847-968-3284 Fax: 847-367-6649 Email: kklick@lcfpd.org</p>	<p><b>Tom Polzin (Vice Chairman)</b> (Term Expires May 2020) Hey &amp; Assoc., Inc. 26575 W. Commerce Dr., Ste. 601 Volo, IL 60073 Phone: 847-740-0888 Fax: 847-740-2888 Email: tpolzin@heyassoc.com</p>	<p><u>Alternate</u> <b>Vince Mosca</b> Hey &amp; Assoc., Inc. 26575 W. Commerce Dr., Ste. 601 Volo, IL 60073 Phone: 847-740-0888 Fax: 847-740-2888 Email: vmosca@heyassoc.com</p>
<p><b>Mike Zemaitis</b> (Term Expires May 2020) Engineer of Design LC Division. of Transportation 600 Winchester Rd. Libertyville, IL 60048 Phone: 847-377-7400 Fax: 847-362-5290 Email: mzemaitis@lakecountyil.gov</p>	<p><u>Alternate</u> <b>AI Giertych</b> Assist. County Engineer LC Division of Transportation 600 Winchester Rd. Libertyville, IL 60048 Phone: 847-377-7400 Fax: 847-362-5290 Email: agiertych@lakecountyil.gov</p>	<p><b>Pat Bleck</b> (Term Expires May 2020) Bleck Engineering Co., Inc. 1375 Western Ave. Lake Forest, IL 60045 Phone: 847-295-5200 Fax: 847-295-7081 Email: pbleck@bleckeng.com</p>	<p><u>Alternate</u> <b>Joy Corona</b> Bleck Engineering Co., Inc. 1375 Western Ave. Lake Forest, IL 60045 Phone: 847-295-5200 Fax: 847-295-7081 Email: jcorona@bleckeng.com</p>
<p><b>Patrick Glenn</b> (Term Expires May 2020) Senior Engineer Gewalt Hamilton Assoc. Inc. 625 Forest Edge Dr. Vernon Hills, IL 60061 Phone: 847-478-9700 Fax: 847-478-9701 Email: pglenn@gha-engineers.com</p>	<p><u>Alternate</u> <b>Mei Zhu</b> Senior Engineer Gewalt Hamilton Assoc. Inc. 625 Forest Edge Dr. Vernon Hills, IL 60061 Phone: 847-478-9700 Fax: 847-478-9701 Email: mzhu@gha-engineers.com</p>	<p><b>Bill Heinz</b> (Term Expires May 2020) Village of Grayslake 585 Berry Ave. Grayslake, IL 60030 Phone: 847-223-2323 Fax: 847-223-4821 Email: wheinz@villageofgrayslake.com</p>	<p><u>Alternate</u> <b>Kurt Baumann</b> Baxter &amp; Woodman 442 N. Cedar Lake Rd. Round Lake, IL 60073 Phone: 815-444-3313 Email: baumann@baxterwoodman.com</p>
<p><b>Kathy Chernich</b> (Term Expires May 2020) U.S. Army Corp. of Engineers 231 LaSalle St., Ste. 1500 Chicago, IL 60604 Phone: 312-846-5531 Fax: 312-353-4110 Email: Kathy.G.Chernich@usace.army.mil</p>	<p><u>Alternate</u> <b>Kaitlyn Pascus</b> U.S. Army Corp. of Engineers 231 LaSalle St., Ste. 1500 Chicago, IL 60604 Phone: 312-846-5533 Fax: 312-353-4110 Email: kaitlyn.a.pascus@usace.army.mil</p>	<p><b>Peter Manhard</b> (Term Expires May 2020) Manhard Consulting One Overlook Point, Suite 290, Lincolnshire, IL 60069 Phone: 847-634-5550 Fax: 847-634-0095 Email: pmanhard@manhard.com</p>	<p><u>Alternate</u> <b>Bill Hupperich</b> Manhard Consulting, Ltd. One Overlook Point, Suite 290, Lincolnshire, IL 60069 Phone: 847-634-5550 Fax: 847-634-0095 Email: whupperich@manhard.com</p>

# Technical Advisory Committee

<p><b>Don Dressel (Chairman)</b>  <i>(Term Expires May 2020)</i>                  Christopher Burke Engineering                  9575 W. Higgins Rd., Ste. 600                  Rosemont, IL 60018-4920                  Phone: 847-823-0500                  Fax: 847-823-0520                  Email: Ddressel@cbbel.com</p>	<p><u>Alternates</u>  <b>Kay Whitlock</b>                  Christopher Burke Engineering                  9575 W. Higgins Rd., Ste. 600                  Rosemont, IL 60018-4920                  Phone: 847-823-0500                  Fax: 847-823-0520                  Email: kwhitlock@cbbel.com</p> <p><b>Scott Griffith</b>                  Christopher Burke Engineering                  9575 W. Higgins Rd., Ste. 600                  Rosemont, IL 60018-4920                  Phone: 847-823-0500                  Fax: 847-823-0520                  Email: sgriffith@cbbel.com</p>	<p><b>Ramesh Kanapareddy</b>  <i>(Term Expires May 2020)</i>                  City of Highland Park                  1150 Half Day Rd.                  Highland Park, IL 60035                  Phone: 847-432-9907                  Fax: 847-432-0807                  Email: rkanapareddy@cityhpil.com</p>	<p><u>Alternate</u>  <b>Manny Gomez</b>                  City of Highland Park                  1150 Half Day Rd.                  Highland Park, IL 60035                  Phone: 847-432-1186                  Fax: 847-432-0807                  Email: egomez@cityhpil.com</p>
<p><b>Eric Steffen</b>  <i>(Term Expires May 2020)</i>                  Operations Manager                  Lake County Planning                  Building &amp; Development                  500 W. Winchester Rd.                  Libertyville, IL 60048                  Phone: 847-377-2109                  Fax: 847-984-5853                  Email: esteffen@lakecountyil.gov</p>	<p><u>Alternate</u>  <b>Brian Frank</b>                  Principal Engineer                  Lake County Planning, Building &amp; Development                  500 W. Winchester Rd.                  Libertyville, IL 60048                  Phone: 847-377-2086                  Fax: 847-984-5853                  Email: bfrank@lakecountyil.gov</p>	<p><b>Heather Galan</b>  <i>(Term Expires May 2020)</i>                  Village Engineer                  Village of Gurnee                  325 N. O'Plaine Rd.                  Gurnee, IL 60031                  Phone: 847-599-7582                  Fax: 847-623-9475                  Email: hgalan@village.gurnee.il.us</p>	<p><u>Alternates</u>  <b>Nicholas Leach</b>                  Village of Gurnee                  325 N. O'Plaine Rd.                  Gurnee, IL 60031                  Phone: 847-599-7586                  Fax: 847-623-9475                  Email: nleach@village.gurnee.il.us</p> <p><b>Dave Ziegler</b>                  Director of Community Development                  Village of Gurnee                  325 N. O'Plaine Rd.                  Gurnee, IL 60031                  Phone: 847-599-7550                  Fax: 847-623-9475                  Email: davidz@village.gurnee.il.us</p>

**TECHNICAL ADVISORY COMMITTEE  
MEETING MINUTES  
August 15, 2019  
Lake County Stormwater Management Commission  
500 W. Winchester, Libertyville, IL**

**1.0 CALL TO ORDER 9:08 AM**

<b>TAC Members &amp; Alternates</b>	<b>Staff Present</b>	<b>General Public</b>	
Brian Frank	Ernesto Huaracha	Joel Krause	Edgar Joves
Donald Dressel	Glenn Westman	Joanna Colletti	Brittany Sloan
Mike Zemaitis	Mike Warner	Susan Novak	Dave Giordano
Kurt Baumann (left at 11:16am)	Kurt Woolford	Joanna Colletti	Adrienne Cizek
Kathy Chernich	Kelcey Traynoff	Clay Johnson	Marie Hansen
Mei Zhu	Bob Gardiner	Carrie Bristoll – Groll	Greg Byard - (conference call)
Heather Galan (arrived at 9:20am)	Mike Prusila	Darrell Kuntz	
Tom Polzin			
Joy Corona			
Bill Hupperich			
Jim Anderson			

**2.0 ADDITIONS TO THE AGENDA – None**

**3.0 PUBLIC COMMENT- None**

**4.0 STAFF REPORT-**

Mr. Kurt Woolford started the discussion by informing TAC that SMC held the third public information meeting on August 8<sup>th</sup> and there is an interest to hold additional public information meetings.

**5.0 APPROVAL OF THE MINUTES**

Mr. Tom Price moved to approve the July 18, 2019 TAC minutes, seconded by Mr. Kurt Baumann. Mr. Jim Anderson and Mr. Brian Frank abstained. Vote: Approved 8-0-2.

**6.0 OLD BUSINESS**

6.1 Ms. Joy Corona presented her analyses on site-specific detention with the updated Bulletin 70 rainfall. The analyses looked at the detention requirements of four sites using both the current ordinance standards and the updated rainfall data. TAC recommendations/comments: Current strategies are working and there doesn't seem to be a significant impact; Use new rainfall but look at a way to incentivize BMPs where volumetric credit is given.

6.2 Ms. Carrie Bristoll-Groll and Ms. Adrienne Cizek from Stormwater Solutions Engineering presented on regenerative stormwater conveyance (RSC) and StormGUARDen. Both Ms. Bristoll-Groll and Ms. Cizek explained the benefits of the StormGUARDen and RSC, coupled with green infrastructure, respectively.

6.3 Mr. Greg Byard, from ISWS, presented to TAC via conference call. He discussed the criteria needed to perform a watershed-specific release rate study for North Mill Creek. When selecting the watersheds to study in Cook County for MWRD, ISWS looked at a list of various characteristics: watersheds with detailed modeling, large flood control structures within the watershed, the ability of planning data, population projection, distribution and level of land development, and physical characteristics (slope, drainage area, critical duration, etc.). Mr. Byard also explained that additional criteria may need to be considered, including: goals of the release rate, development patterns in a specific watershed compared to more regional patterns, watershed timing, the benefits of using an existing study compared to going into a new watershed that needs updates from design rainfalls improving to the

new updated Bulletin 70 values, consideration of the release rate ranges, and areas within the county that are a concern for development.

A future watershed-specific study for North Mill Creek was discussed. Ms. Joy Corona motioned to approve the selection of the North Mill Creek Watershed for this first study and Mr. Jim Anderson seconded the motion. Vote: Approved 10-0-0.

**7.0 NEW BUSINESS - None**

**8.0 ADJOURNMENT**

Motion to adjourn by Mr. Jim Anderson, seconded by Mr. Tom Price. Meeting adjourned at 11:51AM  
Vote: Approved 10-0-0 (unanimous).

## WDO AMENDMENTS FOR TAC – September 19, 2019

### WDO Amendment #1a

#### Appendix I: Updated Rainfall Depth Duration Frequency Table

#### Rainfall Depth Duration Frequency Tables for Lake County Rainfall is in Inches

Duration	2 year	5 year	10 year	25 year	50 year	100 year	500 year
5 min	0.40	0.52	0.62	0.77	0.90	1.03	1.35
10 min	0.70	0.90	1.08	1.35	1.58	1.80	2.36
15 min	0.90	1.16	1.39	1.74	2.03	2.31	3.03
30 min	1.24	1.59	1.91	2.39	2.78	3.17	4.16
1 hour	1.57	2.02	2.42	3.03	3.53	4.03	5.28
2 hour	1.94	2.49	2.99	3.74	4.35	4.97	6.52
3 hour	2.14	2.75	3.30	4.13	4.80	5.49	7.20
6 hour	2.51	3.23	3.86	4.84	5.63	6.43	8.43
12 hour	2.91	3.74	4.48	5.61	6.53	7.46	9.78
18 hour	3.14	4.04	4.84	6.06	7.05	8.06	10.57
24 hour	3.34	4.30	5.15	6.45	7.50	8.57	11.24
48 hour	3.66	4.71	5.62	6.99	8.13	9.28	12.10
72 hour	3.97	5.08	6.05	7.49	8.64	9.85	12.81
120 hour	4.42	5.63	6.68	8.16	9.39	10.66	13.81
240 hour	5.60	7.09	8.25	9.90	11.26	12.65	16.00

#### References:

1. Huff, F. A., and J. R. Angel. 1989. [Rainfall Distributions and Hydroclimatic Characteristics of Heavy Rainstorms in Illinois \(Bulletin 70\)](#). Illinois State Water Survey, Champaign, IL.
2. J. Angel, Momcilo, M. 2019. [Frequency Distributions of Heavy Precipitation in Illinois: Updated Bulletin 70](#). Illinois State Water Survey Contract Report 2019-05, Champaign, IL.

**Purpose:** Incorporate new rainfall data as published in updated Bulletin 70 study. Same table from TAC-approved Interim Technical Guidance Memo.

### WDO Amendment #1b

#### Appendix I: Updated Huff Rainfall Distributions

#### Future, Awaiting ISWS 2<sup>nd</sup> Report

**Purpose:** Incorporate new Huff Rainfall Distributions. No action requested at this time.

### WDO Amendment #2

#### § 507.01.B. Emergency Overflow Top of Impoundment

- B. The top of the impounding structure shall be a minimum of **one (1) foot six (6) inches** above the design high water level within the emergency overflow structure based on 507.01A.

**Purpose:** Provide additional detention storage allowance within current design requirements.

**509.04**        *The following fee-in-lieu of on-site stormwater storage procedures shall be authorized for all developments permitted after [NEW WDO DATE].*

- A. *The Enforcement Officer may require, or the applicant may submit, a written request for the payment of a fee-in-lieu of on-site stormwater storage to fulfill all or part of the on-site detention requirement above the 50-year, 24-hour detention volume using Appendix I: Rainfall Depth Duration Frequency Tables for Lake County. A request for fee-in-lieu of on-site stormwater storage shall be either rejected or approved within forty-five (45) days of the written request unless additional engineering studies are required.*
- B. *Approval of a request for fee-in-lieu of on-site stormwater storage on a development site above the 50-year, 24-hour detention volume shall be determined by the Enforcement Officer.*
- C. *Fee-in-lieu of on-site stormwater storage shall be the fee computed for each acre-foot or cubic yard or part thereof of stormwater storage approved in accordance with the procedures and schedules as approved by the SMC.*
- D. *A fund will be maintained by the SMC for each of the four major Lake County watersheds for the purpose of identifying and controlling all revenues and expenditures resulting from fee-in-lieu of on-site stormwater storage approvals. All fee-in-lieu of on-site stormwater storage revenues received from each watershed shall be deposited in these funds for use within that watershed.*
- E. *The following requirements must be met before a fee-in-lieu of on-site stormwater storage will be approved:*
  - 1. *The downstream stormwater management system has “adequate downstream stormwater capacity” (see Appendix A: Definitions); and*
  - 2. *The SMC has an adopted fee-in-lieu of on-site stormwater storage program.*
- F. *Fee-in-lieu of on-site stormwater storage revenues may be used to plan, design, or construct an upgrade to existing or future stormwater management systems if the upgrade is consistent with a basin plan, floodplain study, or stormwater system improvement that has been approved by the SMC.*

**Purpose:** Provide fee-in-lieu option, as determined by the Enforcement Officer. Communities may be more restrictive and omit this option during Community Ordinance adoption.

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**WDO Amendment #4**  
**Appendix A: DEFINITIONS**

Flood Protection Elevation (FPE): The elevation of the [base flood elevation](#) plus two (2) feet of [freeboard](#), **except for areas listed below:**

**Mainstem of them Des Plaines River: The elevation of the 0.2-percent annual chance [500-year] flood hazard area plus two (2) feet of [freeboard](#).**

**Purpose:** Increase flood protection elevation along the Des Plaines River mainstem.

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**WDO Amendment #5**  
**§ 302.02 Exempted Developments**

Annexation agreements, final plats, Planned Unit Developments, site development permits, or current building permits approved between October 18, 1992 and ~~July 10, 2012~~ **[Lake County Board WDO Adoption DATE + six (6) months]** if the approved plans and designs are in conformance with the ~~pre-[Lake County Board WDO Adoption DATE] July 10, 2012~~ Ordinance provisions. That portion of any annexation agreement, final plat, Planned Unit Development, site development permit, or current building permit which is amended after **[DATE + 6 months]** ~~the effective date of this Ordinance~~ and which affects the [stormwater management system](#) is not exempt from the provisions of this Ordinance.

**Purpose:** Allowance for exemptions to be requested up to 6 months after effective WDO adoption date.

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**WDO Amendment #6**  
**§ 501.06 Developed Soil HSG**

For determination of soil runoff characteristics, areas of the [development](#) that are [hydrologically disturbed](#) and compacted shall be changed to the **next higher that hydrologic soil types' highest runoff potential/soil** group classification **e.g., B to C, C to D**. Soil groups that are not hydrologically disturbed will retain their current runoff characteristics. ~~Areas that are deed or plat restricted for native planting areas may be determined to have lower runoff characteristics, and may be taken into account when meeting the runoff volume reduction requirements of this Ordinance (503.02). The Enforcement Officer may determine these areas are not hydrologically disturbed and may be removed from the required detention volume calculation.~~

**Purpose:** Clarify how HSG's are changed for hydrologically disturbed areas. Separate native planting section.

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**WDO Amendment #7 – NEW (separated from 501.06)**  
**§ 501.07 Native Planting Incentive**

Areas that are deed or plat restricted for native planting areas may be determined to have lower runoff characteristics, and may be taken into account when meeting the runoff volume reduction requirements of this Ordinance (503.02). **The Enforcement Officer may determine these areas are not hydrologically disturbed and may be removed from the required detention volume calculation.**

**Purpose:** Clarify incentive for native planting areas.

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