



**EAST-WEST GATEWAY  
Council of Governments**

Creating Solutions Across Jurisdictional Boundaries

**AGENDA  
WATER RESOURCES ADVISORY COMMITTEE  
Tuesday, August 1<sup>st</sup>, 2023  
10:30 AM – 12:00 PM  
East-West Gateway Board Room and Virtual**

You can listen, talk, and/or view the meeting via:

**Computer** - <https://meet.goto.com/345454485>

Access code: 345-454-485

**Or Phone** - [+1 \(224\) 501-3412](tel:+1(224)501-3412)

1. **CALL TO ORDER** - Carol Lawrence, Chair, East-West Gateway Council of Governments
2. **DISCUSSION ITEMS**
  - A. Update on Prairie du Pont/ Judy’s Branch Watershed Planning Project**
    - John O’Donnell, HeartLands Conservancy
  - B. Deer Creek Watershed Management Plan**
    - Stacy Arnold, Missouri Botanical Garden
  - C. Overview of the Water Program at Missouri Department of Natural Resources’ St. Louis Regional Office**
    - Spencer Gould, Missouri Department of Natural Resources
3. **OTHER BUSINESS/ANNOUNCEMENTS**
4. **ADJOURNMENT**

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**Regional Citizens**

Barbara Geisman  
C. William Grogan  
John A. Laker  
Ron Williams

**Non-voting Members**

Holly Bieneman  
Illinois Department of Transportation

Vacant  
Illinois Department of Commerce  
and Economic Opportunity

Patrick McKenna  
Missouri Department of Transportation

Taulby Roach  
Bi-State Development

Aaron Willard  
Missouri Office of Administration

**Executive Director**

James M. Wild

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## **Minutes**

Regional Water Resources Advisory Committee

Tuesday, February 28, 2023

10:30 am – 12:00 pm

In Person and Virtual Meeting - East-West Gateway Council of Governments

### **Attendees:**

Carol Lawrence – East-West Gateway Council of Governments

Josh Ward – Missouri Department of Conservation

Danelle Haake – National Great Rivers Research and Education Center

Amy Haddock

Eric Karch - Rietz & Jens

Josiah Holst - HR Green

Robert Stout – Midwest Waters

Sarah Wright – Missouri Department of Natural Resources

Dan Rahn – City of Wildwood

Rick Brown – City of Wildwood

Len Madalon – EDM Inc.

Jeff Wappelhorst, City of Frontenac

If you attended this meeting, please let us know and we will update the minutes.

### **Staff:**

Mary Grace Lewandowski, Jennifer Vuitel, Aaron Young, Anna Chott, Maureen McCarthy

#### 1. CALL TO ORDER

The virtual meeting of the Regional Water Resources Advisory Committee (WRC) was called to order by Chair Carol Lawrence, East-West Gateway Council of Governments (EWG). Those attending introduces themselves.

#### 2. DISCUSSION ITEMS

##### **A. Frontenac’s Timber Trail to Briar Ridge Streambank Restoration Project**

- Len Maladon, EDM Inc.
- Jeff Wappelhorst, City of Frontenac

In 2021 – 2022 the City of Frontenac, EDM Inc. and Ideal Landscape Group worked on the Timber Trail to Briar Ridge Channel Project to produce a solution to chronic bank erosion and creek degradation in a city of Frontenac neighborhood. Severe stream bank erosion from years of stormwater runoff resulted in the loss of soil, trees and shrubs from back yards, threatened structures as retaining walls and was beginning to threaten homes. Careful technical analysis to learn what was happening in this stream, creative engineering that included both greenscape and hardscape techniques, early and often communication with home owners, and integration of homeowner concerns were important elements of this project. The City of Frontenac was the

recipient of a 2023 Outstanding Local Government Achievement award for this project from EWG.

In 2005, the city of Frontenac enacted ½ cent sales tax to address stormwater concerns. Frontenac then prepared a stormwater master plan. By coordinating with the Metropolitan St. Louis Sewer District (MSD) and by leveraging USEPA 319 nonpoint source water quality funding with local funding, the city was able to address erosion and water quality issues in the Timber Trail to Briar Ridge project. The project stabilized a tributary to Two-Mile Creek that feeds into Deer Creek. Deer Creek is impaired for *E. coli* and chloride, and floods during high rainfall events.

Where homeowners agreed, Frontenac acquired easements so work could be performed on their property. If a homeowner did not agree, work only occurred in the creek bed. The project used native vegetation on over 1,300 feet of the channel, which prevents approximately 100 tons of sediment, 114 lbs. of phosphorus and 227 lbs. of nitrogen from polluting Deer Creek each year. These reductions are made possible to a significant extent because of over 600 linear feet of filter strips containing shrubs that remove *E. coli* bacteria from 90% of rain events. The filter strips were designed specifically for this project. Willow stakes and earthen benches were installed in and rip rap were also utilized. As a result of technical analysis conducted as part of this project, an error was identified in the deviation for critical sheer stress values, a component of determining erodibility of creek channels. This discovery will improve engineering design and function of future streambank stabilization projects.

<chrome-extension://efaidnbnmnnibpcajpcglclefindmkaj/https://www.ewgateway.org/wp-content/uploads/2022/11/AMtg-2022-Program.pdf>

## **B. Municipal Stormwater Management Planning Efforts**

- Eric Karch, Rietz & Jens
- Josiah Holst, HR Green

An overview of regional and municipal stormwater plans and funding strategies was presented. The Stormwater System Master Improvement Plan by the Metropolitan Sewer District (MSD) supports a service area of 520 square miles that includes 88 municipalities along with unincorporated St. Louis County. The key goals of the plan were to create a prioritized list of capital improvement projects to implement once the funds were available. The plan also sought to calculate the detention basin release rates to prevent further deterioration of downstream properties.

In 2008 MSD identified over 2,000 capital projects to address stormwater issues. In 2013 MSD's stormwater impervious fee was rescinded which meant there was no funding to address new stormwater solutions. In 2019 a proposal for new stormwater funding was narrowly rejected by voters. Many municipalities prevent new stormwater problems from new development with zoning or other comprehensive development plans. There are also ordinances to manage floodplain development and stormwater for large-scale development and signatory to regional plans like the Phase II Stormwater Management Plan for MSD and 61-co-permittees. Many

municipalities do not have master plans to address problems that existed before these regulatory tools. These problems got worse due to increasing storm intensity and aggregate effects of many small developments. Local municipalities need stormwater master plans to address local priorities, become more independent as MSD has limited funding, to better serve the constituency, and provide opportunities to report concerns and organize available data. Solutions often exceed the capability of average homeowners.

Local stormwater plans encompass a broad scope of items: level of service and how to collect complaints or observations; how to identify stormwater concerns, develop and evaluate alternative improvement concepts, and prioritize issues such as creek erosion, localized flooding, or city-wide flooding; codes and ordinances; design standards; development models to guide development and priorities; a capital improvement plan and funding strategies; and asset management. In St. Louis County there are 15 municipalities with stormwater management plans and two municipalities in St. Charles County have plans.

The cost of developing a stormwater plan can range from \$50k to \$500k. Funding sources for pre and post disaster mitigation and NPDES improvements include federal and state grants. Funding for stormwater master planning can come from OMCI taxes or parks and stormwater sales tax or bonds as in Brentwood. At the last Deer Creek Watershed Alliance Technical Meeting it was suggested to look into Section 604(b) Water Quality Management Planning funding and working with East-West Gateway. The 604(b) awards are small, ranging from \$25k to \$50k, but they could be critical to smaller municipalities.

### **C. Caulks Creek Watershed Study in Wildwood**

Paul Rydlund, Central Midwest Water Center, U.S. Geological Survey

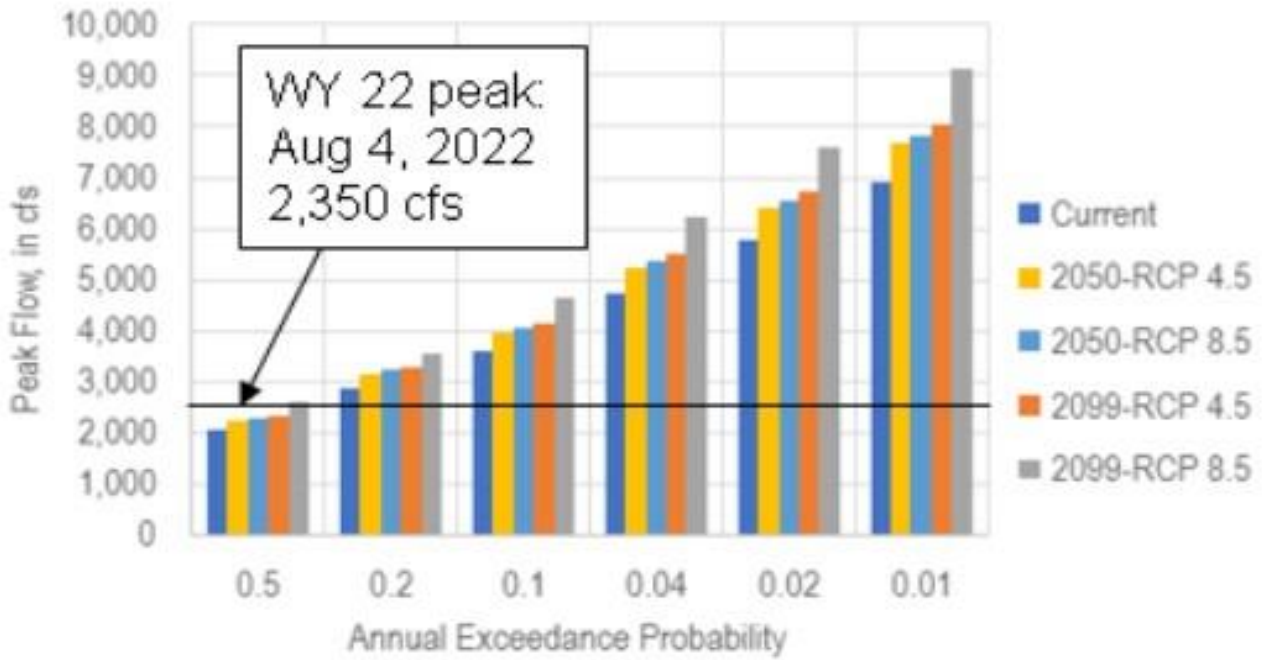
This study is being conducted for the City of Wildwood to look at the effects of climate change and additional storage on the hydrologic response of the Caulks Creek basin. The lead on this project is hydrologist Dr. Jessica LeRoy from the U.S. Geological Survey (USGS) Central Midwest Water Science Center. The objectives of this project include: monitoring bank erosion at key sites along the creek; conducting hydrologic and hydraulic modeling to assess the response of Caulks Creek to design storms to look at peak flows and storage; and conduct creek bank stability modeling and sediment sampling at four different sites. The project began in 2021. Bank erosion data was collected in the first year, 2022, and is now being processed. The second year of the project begins in February of 2023. The hydrologic modeling is complete, the hydraulic modeling is in progress, and the bank stability modeling is dependent on the hydraulic model results.

This project will have several deliverables released to the public: interim terrestrial-lidar (T-lidar) monitoring data in March 2023; a conference extended abstract will be ready in April 2023; the model archive that includes all of the files needed to run the models without interpretations will be available in December 2023; all of the collected data without interpretations will be released in December 2023; and the scientific investigations report containing the results an interpretations will be ready in March of 2024. This information will be presented to the City of Wildwood.

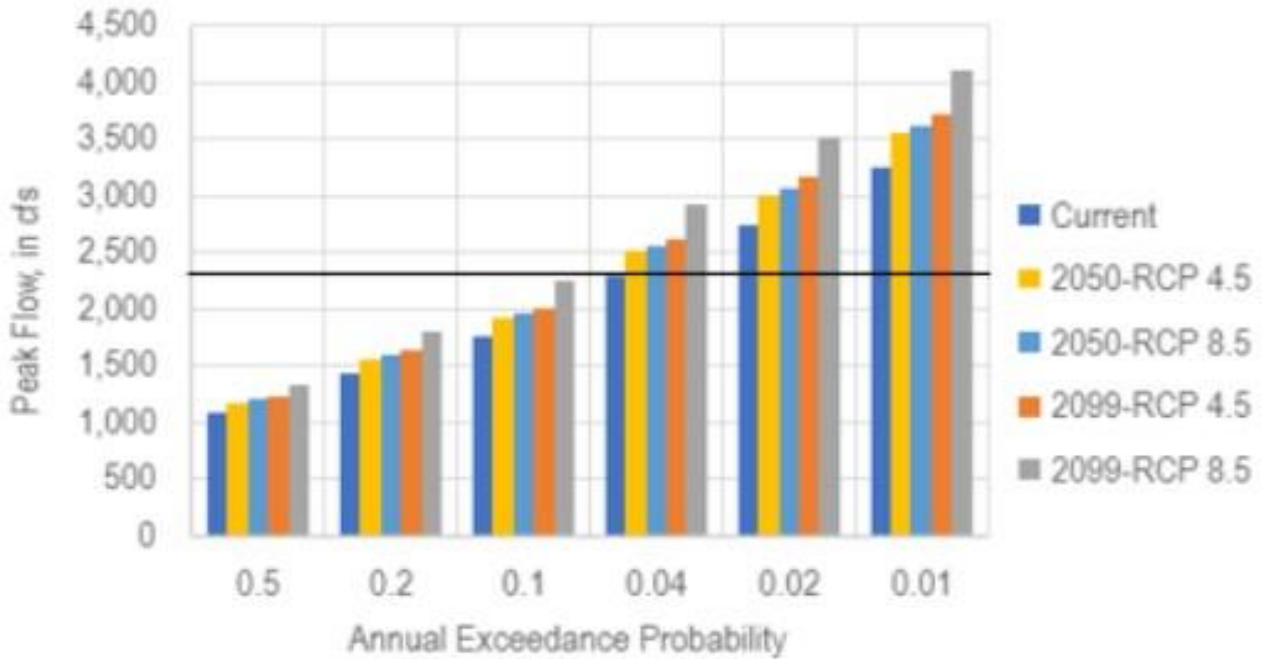
The erosion monitoring data was collected from six priority locations with input from the Wildwood Watershed Erosion Task Force. T-lidar data (scanning the banks of Caulks Creek) from 2022 and another set from 2023 were collected to observe the pre and post spring high-flows. There were 14 erosion pins installed in February 2022 to supplement the T-lidar data. Most of the pins are located outside of the T-lidar scan areas. The pins were re-measured in May, July and October of 2022.

The hydrologic modeling helped to track the basin response characteristics including the peak, volume, and timing. Comparisons were made between 6-hour and 24-hour design storms, antecedent moisture, storage, and climate change in 2050 and 2099. An example of the results from the hydrologic model for normal soil moisture conditions (CNII) and a 6-hour and 24-hour storm can be seen on the next page.

### CNII, 6-hr



### CNII, 24-hr



These charts show the peak flow at the USGS gage for different design storms for current and future climate.

The hydraulic modeling is currently calibrating to high flow events on July 28, 2022 and August 4, 2022. It was found that there is a need for some additional elevation data and culvert dimensions. The bank stability modeling is dependent on the results of the hydraulic model. That data will be collected using the Bank Stability and Toe Erosion Model (BSTEM) which was developed by the USDA. It derives simplified estimates of stream bank toe erosion by hydraulic processes and calculates a factor of safety for multi-layer streambanks. Four of the modeling sites are located within the T-lidar areas. Sediment characterization will be done using three samples of the vertical bank profile at each site.

### 3. OTHER BUSINESS/ ANNOUNCEMENTS

Stacy Arnold, Missouri Botanical Garden watershed planner, for the Missouri Botanical Gardens Deer Creek Watershed Alliance (DCWA), provided an update on the Deer Creek Watershed Plan prepared by the Deer Creek Watershed Alliance (DCWA). A key part of phase four, 2019 – 2023, has been to develop a current watershed management plan. The previous plan was approved in 2011 and phase four has included the implementation of this original plan as well as developing the new plan. The first draft of the Deer Creek Watershed Management Plan update was released to the Missouri Department of Natural Resources (MoDNR) for review in January of 2021. The DCWA worked with MoDNR to update the draft based on their comments and then released the plan to the Environmental Protection Agency (EPA) for them to review. All of the drafts were posted for public comment. As of February 24<sup>th</sup> the watershed plan was accepted by MoDNR and EPA. This is the first urban watershed plan that addresses chloride pollution. The other major pollutant the plan addresses is *E. Coli*.

For more information you can contact Stacy at [Stacy.Arnold@mobot.org](mailto:Stacy.Arnold@mobot.org)

### 4. ADJOURNMENT

There being no other business, the meeting was adjourned. The next meeting of the Water Resources Advisory Committee will be August 1<sup>st</sup>, 2023.