EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

# AGENDA
# WATER RESOURCES ADVISORY COMMITTEE
# Friday, February 25, 2022
# 10:30 AM – 12:00 PM
# VIRTUAL MEETING - GoToMeeting

DUE TO COVID-19 OUTBREAK, EAST-WEST GATEWAY'S OFFICES ARE CURRENTLY CLOSED TO THE PUBLIC AND WILL BE UNTIL FURTHER NOTICE

You can listen, talk, and/or view the meeting via:
**Computer** - https://meet.goto.com/594413749

Access code for meeting through computer: **594-413-749**

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1. CALL TO ORDER - Carol Lawrence, Chair, East-West Gateway Council of Governments
2. DISCUSSION ITEMS
   - **A. Tower Grove Park East Stream Project**
     - Bill Reininger, Tower Grove Park
   - **B. Piasa Island Habitat Restoration and Enhancement Project**
     - Brian Markert, U.S. Army Corps of Engineers
   - **C. Upcoming Infrastructure Projects**
     - Shawn Sullivan, U.S. Army Corps of Engineers
3. OTHER BUSINESS/ANNOUNCEMENTS
4. ADJOURNMENT

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# Minutes

Regional Water Resources Advisory Committee
Friday, November 5, 2021
10:30 am – 12:00 pm
Virtual Meeting - East-West Gateway Council of Governments

**Attendees:**
Stacy Arnold – Missouri Botanical Garden
Colin Wellenkamp – Mississippi River Cities and Towns Initiative
Rob Kennedy – Missouri Botanical Garden
Kaleena Menke – Metropolitan St. Louis Sewer District
Paul Rydlund – US Geological Survey
Jennifer Wendt - Mississippi River Cities and Towns Initiative
Josh Ward – Missouri Department of Conservation
Bob Criss – Washington University
Mark Rosen – City of Highland, IL
Matt Kulker – St. Peters, MO
Jay Hoskins – Metropolitan St. Louis Sewer District
Mike Hartoin – SCI Engineering, Inc
Shawn Sullivan – US Army Corps of Engineers
Mary Vandevord – HeartLands Conservancy
Roland Biehl – Metropolitan Sewer District
Libby Reuter – Watershed Cairns
Garry Aronberg – HR Green, Inc
Eric Karch – Reitz and Jens
Christine Favilla – Sierra Club
Josiah Holst – HR Green, Inc
Barbara Charry – The Nature Conservancy
Steven Brendel – Madison County, IL
Danelle Haake – National Great Rivers Research and Education Center
Camille Buckley – US Geological Survey
John Schumacher – US Geological Survey
Rob Hunt – Missouri Department of Natural Resources
Gary Moore – Washington University
Traci Lichtenberg – Missouri American Water

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

**Staff:**
Mary Grace Lewandowski  Jennifer Vuitel  Aaron Young  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. **Update on Grand Glaize Creek Watershed Management Plan Efforts**
- Jay Hoskins, Metropolitan Sewer District

The Metropolitan Sewer District (MSD) is developing a nine-element watershed plan for the Grand Glaize Creek Watershed in order to develop pollutant-reduction strategies which could be funded through the 319 grant program. MSD would like to involve the community as much as possible in the process. Grand Glaize is a highly urbanized watershed in St. Louis County. It is approximately 62 square kilometers and has a population of 55,000.
Historically MSD has not taken the lead in developing 319 watershed plans, however the Grand Glaize Creek Watershed and Simpson County Park Lake, which is at its terminus, provide a unique opportunity for work in the watershed.

The goal is to submit the watershed plan in the spring of 2022 and then have the plan in place by the spring of 2023. The intention is for MSD to do the legwork for this project so that the community can leverage that plan to obtain funds to do good work in the watershed. MSD is doing a lot of data collection in the watershed and trying to develop the baselines and then determine the path that is needed to beat the pollution reduction targets to meet the water quality standards.

MSD and its consultant have developed Element A and Element B of the nine-element watershed plan for Grand Glaize Creek. Element A deals with the introduction of the problem as well as the elements that cause an impairment and the second element addresses estimated pollutant load reduction from different management strategies.

The Missouri Department of Natural Resources (MoDNR) completed its water quality criteria for Missouri lakes and reservoirs in 2018. Simpson Park Lake is the only nutrient impaired lake in St. Louis County. MSD is moving forward with the Grand Glaize Watershed management plan with the intention of trying to improve water quality of Simpson Park Lake. Grand Glaize Creek has been identified as impaired for *E.coli*.

From the pathogen data collected so far using a low duration curve type approach it has been determined that about 60 percent of the remaining *E coli* pollution entering the watershed needs to be removed. Most of the pollution is entering the watershed as stormwater during wet weather. Using the same method it was also determined that there needs to be a 50 percent reduction in the phosphorous (nutrient pollutant) entering the watershed as a result of stormwater.

In order to achieve those load reductions MSD is looking at the pollution sources that need to be addressed. The biggest source of *E. coli* is most likely private sewers, which are the sewers not owned by MSD. These could be laterals and septic tanks associated with homeowners or businesses that have their own systems separate from MSD. The biggest sources of phosphorous are dumping, fertilizer, and grass clippings, and stream bank erosion. MSD is also looking at its own practices and how they relate to those potential pollution sources. MSD holds a number of permits and has regulatory requirements regarding these pollution issues already. The goal for the watershed management (319) plan is to build upon those existing permits and highlight how 319 program funding will maximize the impact the community can have in the watershed.

Moving forward, the ideal types of controls and management measures include more education and outreach, an additional subsidization program to assist with septic replacement and repair, a focus in environmental justice areas within the watershed, and more stream bank stabilization. MSD has tried unsuccessfully for several years to introduce an increase in the stormwater rate that would allow them to do stream bank stabilization projects that would help address the local flooding issues.

At the moment MSD is looking to determine the feasibility of controlling phosphorus coming into Simpson County Park Lake. There are a number of community partners that have expressed interest in collaborating in that effort.

**B. Silver Lake Watershed Project**

- Mark Rosen, City of Highland, IL

The Silver Lake watershed is the water supply for the City of Highland, the Village of Grand Fork, and St. Jacob. Highland is very rural and agricultural and has many tributaries that lead to Silver Lake. The combination of agricultural land and streams have caused pollution issues for the lake. The City of Highland partnered with HeartLands Conservancy as well as the landowners of Grand Fork to address that pollution. HeartLands received 319 grant funding in 2011 to prepare a watershed management plan and again in 2018 to fund implementation strategies along with city of Highland. The sediment runoff from the streams was filling in the lake so the first task was to address the runoff. The main way of doing this was involving the agricultural landowners in the watershed in reducing the velocity of the rain water leaving their land with the use of rock riffles and grass waterways. The City of Highland utilized the 319 program funding for projects focused on shoreline stabilization by using rip rap and creating peninsulas. The next group of projects were in Silver Lake Park. They created a pond for fish rearing as well as a quarter acre of wetlands and removed a large amount of bush honeysuckle.

The 319 grant is vital for Highland to continue with the projects in Silver Lake. Over the last three years the city has taken $75,000 from the water treatment plant and put it into smaller scale watershed projects. This past year the city used the water treatment plant money to partner with 22 different landowners who made improvements on their properties to help the watershed.

**C. Urban Stormwater, St. Louis Flooding Research**

- Bob Criss, Washington University

Certain groups like to blame climate change for the increase in flooding, but the main issue is a man-made channelization problem. There are higher flows and higher flood stages being repeated more often even though the flow is less. Deer Creek is an example of an urban stream in St. Louis. The gauges throughout most of the Deer Creek basin were decommissioned but the one in Maplewood still worked during the September 15, 2008 flood. The creek was falling only five cubic feet a second (CFS) on the morning of September 14$^{th}$, 2008. These local creeks can rise up ten feet in an hour and can be volatile. In September 2008 most of the five inches of

rainfall happened in three hours (remnant of Hurricane Ike) and Deer Creek went up 20 feet in six hours and had a 2,000 fold increase in flow. In comparison, the Meramec River only climbed 15 feet over two days and the flow only increased by a factor of 16 and the Mississippi went up 23 feet over four days.

Rainfall events affect all rivers in the local region of the rain but big floods occur when the storm timescale matches the basin timescale. Small and big waterways have the same kind of characteristic curves and the same kind of response but the timescales are really stretched out for big rivers..

There is a sweet spot of watersheds that are a few thousand square kilometers that respond in the most drastic way. If the watershed is too big or too small the response is much less. There is a characteristic time constant of the basin that can be matched to the time constant of the storm delivering the precipitation. This provides a fundamental time constant by integrating the flow over the time of the event. That's the volume of water being divided by the volatility of the stream. There can be a response to the velocity of a stream by inverting the characteristic time and dividing it by the square root of the basin area. Good sized rivers are volatile with the day-to-day fluctuations in flow. This shows that the velocity of the water is related to flash flooding in impervious areas increases with urbanization. The worst watersheds in the state are the Upper River, Deer Creek, and Fishpot Creek in the St. Louis area and Brush Creek in Kansas City. These all have been highly channelized which is the source of repeated problems.

A new flood warning system has been developed by Dr. Criss that utilizes ten years of MSD's rainfall data. This data was compared to the US Geological Survey's data. It's found that peak water levels correlate with 75 minutes of rainfall. The warning system is a series of rain gauges that can predict flooding through the inundation mapping.

We need better zoning and building regulations and we need to stick by them to prevent development in the floodplains. There needs to be more data based planning and less model based planning. We need more research on what score and responses and MSD could help by providing the rainfall data for many years throughout the entire St. Louis area.

**D. Report on Mississippi River Plastics Pollution Initiative**

- Jennifer Wendt, Mississippi River Cities and Towns Initiative

The Mississippi River Cities and Towns Initiative (MRCTI) is an association of 101 United States mayors that was created in 2012. It was created to have a common voice along the Mississippi River. There are five pillars the initiative focuses on: clean water, sustainable economies, disaster resilience and adaptation, international food and water security, and a celebration of river culture, history, and heritage.

The MRCTI joined forces with the University of Georgia and the United Nations Environment Programme with support from the National Geographic Society joined together in an initiative to reduce plastics pollution in the Mississippi River Corridor. The Mississippi River drains 40 percent of the continental United States. A plastic bottle on the ground in Montana can easily

make its way to storm drains to tributaries of the Mississippi and end up in the Gulf of Mexico. Up to 80 percent of ocean plastics originate from land-based sources. People in the Mid-West have a tendency to feel far removed from the concern of ocean plastics even though rivers carry a lot of plastic to the oceans.

In 2018 the MRCTI made a commitment to reduce plastics in the Mississippi River Watershed. Not knowing how to begin the MRCTI talked to businesses and manufacturers who also had the goal of reducing their plastic waste. There was not data available to know what was being found in the environment or data to measure the progress of plastic pollution reduction methods. The University of Georgia had created an app that tracked marine debris which has been used globally for about ten years. The app has five million data points entered utilizing GPS to locate the kinds of plastics pollution that are found by citizen scientists from local communities. The mayor offices of St. Paul, St. Louis, and Baton Rouge worked together to recruit over 100 partner organizations and citizens to collect data along the Mississippi and extending into their surrounding areas using the debris tracker app.

Data was collected from March 15th through April 25th 2021. In the St. Louis region there were 12,000 separate data entries that accounted for 75,000 pieces of debris collected, 74 percent of which was plastic. The top items found in the basin was cigarette butts, beverage bottles, bone fragments, food wrappers, and plastic bags. Of the items logged in the app, 94 percent were logged within 50 kilometers of the main stem of the river. For the first round of data collection the partners want to focus on the actions we can take to reduce the most prevalent types of debris found in the basin. A lot of people don't know that cigarette filters are made of plastic. In the past people said that cigarette butts would degrade away, but it is known now that that is not true. Educating people and working with tobacco companies to change their packaging are two of the biggest steps to take to help reduce cigarette debris.

Trying to reduce plastic bottle debris is different. Manufacturers have made commitments to increase the recycled content of their plastic bottles and don't do much beyond that. The biggest impact would come from working with the manufacturers to find ways to reuse more materials and also reduce the amount of plastic used in production. As a part of the plastic reduction initiative an experiment was conducted by putting GPS trackers in plastic bottles and then putting them in the river to see where they would end up. One of the bottles from St. Louis ended up in Baton Rouge and was found by fishermen. Another bottle was released near the Quad Cities and it ended up getting stopped by a dam. Dams and barges are two places where plastic gets stuck and they are both good places to collect plastic to stop it from traveling any further.

The data has already been analyzed. The top debris items are known, so now it is time to determine what the best items and places are to target to work on reducing the amount of plastic waste. The MRCTI will continue the work with the United Nations Environment Programme through 2022 to do more data collection in the Quad Cities (Iowa-Illinois) and Memphis and additional research. St. Louis has been selected but not yet officially awarded the Federal EPA Trash Free Waters grant. With that grant there can be progress made with beverage companies and communities to find solutions to plastic pollution.

3. OTHERBUSINESS/ ANNOUNCEMENTS

**A. Report from OneSTL**

- Aaron Young, East-West Gateway Council of Governments

The last Sustainability Lab of 2021 will be on November 30th. There will be a panel of professionals to talk about careers in sustainability. If you know of anyone looking for a job or students that are interested in sustainability careers you can let them know there will be people talking about government, non-profit, startups, and corporate positions in sustainability. More information can be found at OneSTL.org.

OneSTL has started talks with Great Rivers Greenway to re-invigorate Water Matters to provide messaging to educate audiences about projects and issues related to water quality and watershed awareness.

4. ADJOURNMENT

There being no other business, the meeting was adjourned. The next meeting of the Water Resources Advisory Committee will be on Friday, February 25, 2022.