

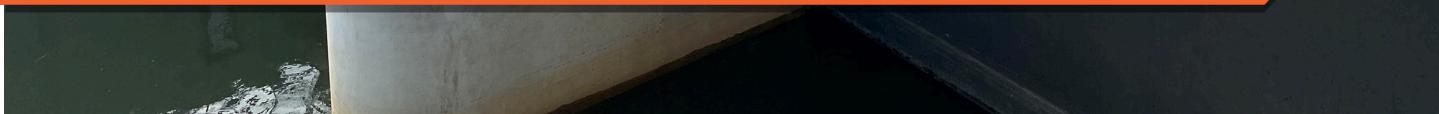
FRM BUZZ

NEWSLETTER

Reducing Flood Risk: Many Partners, One Team



Port Monmouth, NJ, Partners With USACE New York District for Coastal Storm Defense



The ABCs of Flood Risk Management for a Rural Community

The gap between A, identifying the problem, and C, funding the solution, is too great a leap for many to go it alone.

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Interagency Work, Community Efforts Mitigate Wicked Flood Risk in Rossville, Kansas

A new Silver Jacket effort seeks to mitigate the flood hazard before Rossville suffers a permanent setback.

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FRM BUZZ NEWSLETTER



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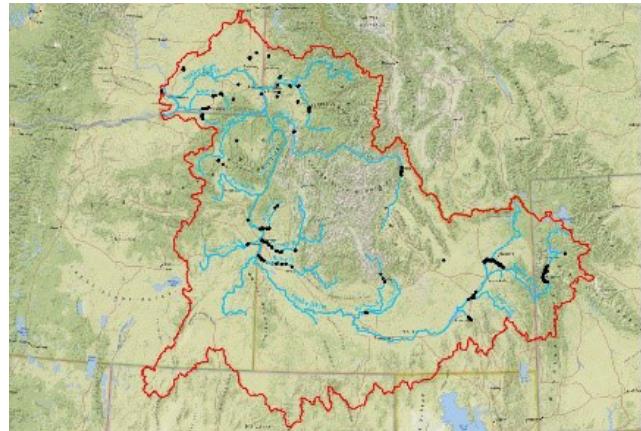
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The Importance of Partnering

By Mark Roupas, Deputy Chief, Office of Homeland Security



Happy Fall and thank you for taking the time to read this edition of the Flood Risk Management Buzz Newsletter. In September, I was able to travel along with our agency's new Deputy Commanding General for Civil and Emergency Operations, Maj. Gen. William (Butch) Graham, and the then Chief of Engineering and Construction, Dr. Christine Altendorf, to visit various locations along the Missouri River within the Kansas City and Omaha districts of the U.S. Army Corps of Engineers (USACE). The primary purpose of this trip was to learn about current efforts within the Missouri River basin, including ongoing levee repair efforts after the 2019 flooding, longer-term efforts to improve resiliency and reduce flood risk, as well as navigation, environmental and endangered species challenges. While not explicitly the purpose of this trip, I was once again reminded about the importance of partnership, especially as I listened and learned from district team members about some of the innovative strategies they have been able to employ in repairing levees, thanks to their strong partnership efforts with local levee sponsors.

Commitment to partnership is a cornerstone of many aspects of USACE, particularly within the Civil Works mission area. Assistant Secretary of the Army for Civil Works, Mr. R.D. James, spoke to this in a [video message on partnership in July 2020](#). He expressed the need to be actively engaged with partners across all Civil Works activities and across all phases of their work. Mr. James stated, and I believe we can all agree, that our efforts as an agency, including our traditional Civil Works projects as well as other activities we undertake within the Flood Risk Management and Emergency Management arenas, would not be as successful as we have been without the expertise our partners bring. The additional data, information, perspectives, and expertise these partnerships bring to our combined efforts are invaluable in our decision-making processes and our successful execution of our various missions.

Within the Office of Homeland Security, I oversee the Flood Risk Management Business Line, the Emergency Management Business Line, the National Flood Risk Management Program (NFRMP) (including the Silver Jackets Program), the Floodplain Management Services Program (FPMS), Public Law 84-99 (including the Rehabilitation Program), the Emergency Management Community of Practice, and the Critical Infrastructure Protection and Resilience Program. The Office of Homeland Security is also involved in the interface into DHS CISA for the Infrastructure Sector, the FEMA Mitigation Framework Leadership Group, partnership with FEMA on the new Building Resilience in Communities (BRIC) program, the relationships with the National Association of Flood and Stormwater Management Agencies (NAFSMA). Partnership is absolutely critical to achieving success for all of

these programs. Across these programs, we partner internally, bringing together multiple communities of practice and functional areas to make sure the full expertise and resources of USACE are being brought to bear on challenges and opportunities we face. We also partner with other federal agencies, state, local, and tribal agencies, including local sponsors of USACE Civil Works projects, academic and other research institutions, international partners, and, in some cases, the private sector as well.

The NFRMP was established to improve partnership efforts internally and externally. The Silver Jackets Program, which implements NFRMP principles at the state level, supports USACE district participation on state-led Silver Jackets teams, which bring federal agencies and other partners together to collaboratively address state-identified flood risk management priorities. The FPMS program partners more heavily with local communities to assist in addressing flood risk management challenges. And of course, within the Flood Risk Management Business Line, partnership is critical to the conduct of flood risk management studies, as well as the operations and maintenance of completed projects. In particular, cost-share partners are vital to the success of the Flood Risk Management Business Line.

Many of our readers are already aware that USACE maintains formal liaison officers (LNO) at key federal partners. From the Civil Works Directorate, we have a full-time LNO within the Office of the Secretary of Defense; FEMA (two LNOs, one for Recovery and one for Response); one LNO at the US Northern Command and another at US Fifth Army; an LNO to the United States Coast Guard; a liaison with the Department of Energy; and a liaison to

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Participants at the 2020 Interagency Flood Risk Management Training Seminar, held this February in St. Louis, MO, were able to meet with and learn from representatives of other federal agencies, nongovernmental organizations, academic organizations, and other partners in flood risk management. Participants identified opportunities for future partnership efforts to work toward flood risk management goals. (USACE, 2020)

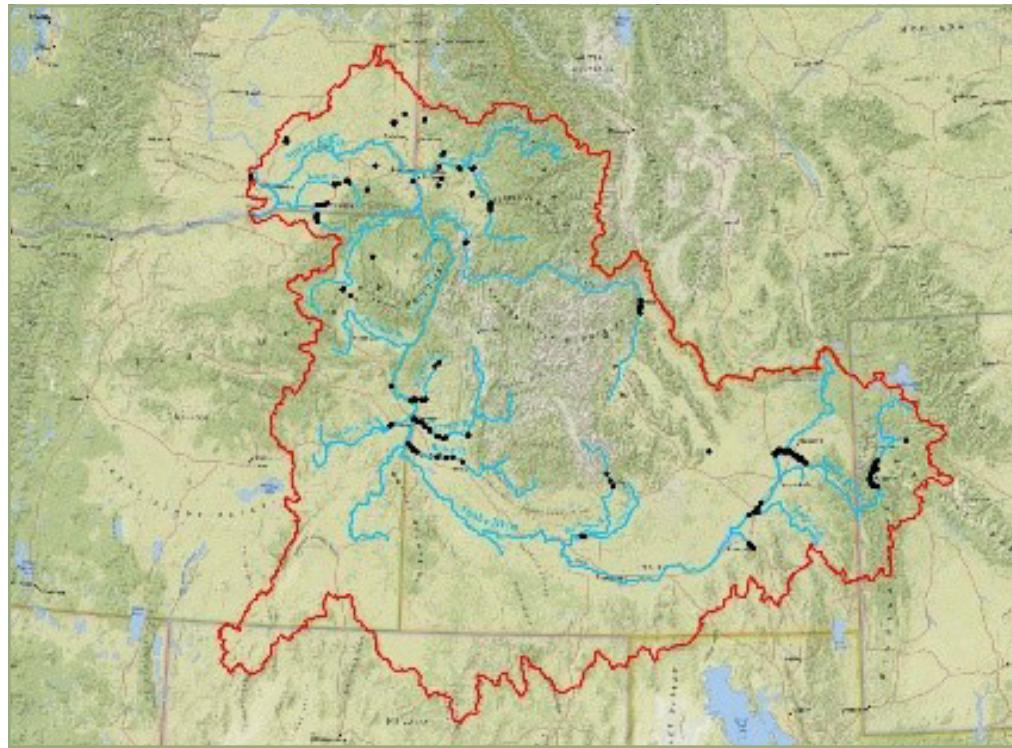
the Bureau of Reclamation. Additionally, our liaison and partnership with FEMA is especially strong as we are considered “FEMA’s engineers.” This partnership is promoted in formal agreements that some of our divisions (Major Subordinate Commands, or MSCs) maintain with their respective FEMA regions. It is further enhanced through the established relationships our ESF-3 Permanent Cadre have with the FEMA regions they are assigned to support. For the PL 84-99 program, our districts maintain strong relationships with the state and local maintaining agencies of Flood Control Works (FCW) projects in order to provide more efficient and effective response and recovery to flood events.

In addition to the above partnership efforts focused primarily on disaster response and recovery, the Civil Works Directorate maintains a listing of outside public and private sector stakeholders. These relationships are crucial to our ability to stay in touch with industry and our various communities of practice to stay abreast of current direction and information in the general population. These partnerships are also key for engagement opportunities for our senior leaders. We are currently in the process of updating this list that will assist us to identify strategic engagements for our new Chief of Engineers, Lt. Gen. Scott Spellmon, together with Maj. Gen. Butch Graham and Director of Civil Works Al Lee.

Thank you again for taking time to review this edition of the FRM Buzz Newsletter. I hope this article and Mr. James’s video have increased your understanding of the importance of partners to both flood risk management and emergency management. I want to take this opportunity to reemphasize my commitment to partnership efforts within the programs that fall within the Office of Homeland Security and I hope to see many of you on the other end of joint efforts in the future. As Mr. James and so many USACE senior leaders have said before, “Make a friend before you need a friend.” ■

New FRM Team Comes Together in Rapid Response to Flooding Crisis

By Tracy Schwarz, USACE Walla Walla District



They say catastrophe brings people together; this is also true for flood risk management (FRM) teams during rapid response to floods. In February 2020, severe flooding caused significant damages to communities and infrastructure in the Blue Mountains region. However, a team of relatively new, untested staff was able to come together to prevent more catastrophic damages from occurring.

The Blue Mountains experienced record winter flooding Feb. 6 and 7. It was the first major local flood event and response in the Walla Walla District's area of responsibility since 2017 and the first major flood for many members of the district's FRM team. Since the 2017 floods, Walla Walla District had brought on a new Dam Safety manager, Levee Safety manager, Water Management manager, and Readiness & Contingency Operations Chief.

Four inches of precipitation landed on the normally arid Blue Mountains

from Feb. 5 through Feb. 6. Rivers rose rapidly. Five basins were particularly hard-hit: Touchet River, Mill Creek, Walla Walla River, Tucannon River, and Umatilla River.

The 2017 flood After-Action Review determined that the district's FRM team needed to meet frequently during the flood season to increase situational awareness. Now the team meets twice a month from January through June, and quarterly the rest of the year. This helps offset the turnover in key positions, allowing new personnel to become familiar with their predecessors' and counterparts' roles, responsibilities, and duties. This practice was key to the team's response in February 2020.

The Touchet River, Walla Walla River, Tucannon River and Umatilla River have levees active in the Rehabilitation Program under Public Law 84-99. (PL 84-99 authorizes USACE to restore damaged levees to pre-storm condition.) In addition, Mill Creek has a USACE-

DISTRICT FLOODING BACKGROUND

Walla Walla District experiences two distinct flood seasons. The first flood season is the spring floods, which are principally snowmelt-based runoff. These tend to be long-duration floods augmented in many basins by reservoirs that store the peak and spread the release gradually. In 2017, the Boise River remained at flood stage continuously for over 100 days.

The second flood season is mainly winter rain on frozen/saturated ground. These winter rains affected the Blue Mountains in 1996 and in February 2020. The floods are of short duration (1-3 days) and are augmented by snowmelt.

maintained reservoir and USACE-maintained levees, which brought a different group of FRM players to the table. The Umatilla River is in Portland District, while the other four rivers are in Walla Walla District. Walla Walla District stood up an Emergency Operations Center (EOC) Feb. 5.

Readiness and coordination with Portland District counterparts started at the onset of the event. The full team came to the EOC meetings and all were engaged and actively communicating. Outside the EOC, flood risk managers were communicating with Planning Branch project managers who had two ongoing FRM projects on these rivers.

On Feb. 6, the National Weather Service's River Forecast Center forecasted that the jet stream was moving north to British Columbia and that the Blue Mountains storm was moving on. There were lingering concerns, however, as the Mill Creek

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Mill Creek channel at capacity (Tracy Schwarz, 2020)



Mill Creek Reservoir filling. (USACE)

reservoir was about 50 percent full, leaving little capacity to contain additional floodwaters. The weather and streamflow conditions were monitored throughout the night as a precaution. This was fortunate as the storm turned and headed right at the Blue Mountains. Another 4 inches of rain fell on the saturated soils. Water Management staff initiated flood response and communications in the middle of the night.

On Mill Creek, flows were temporarily increased beyond the levee design capacity in the channel downstream of the dam. With staff stationed at critical locations all along Mill Creek, the channel water surface was raised to near-zero freeboard on the levees and in the concrete channel. (Freeboard is the vertical distance between the water surface and the top of the levee embankment.) Walla Walla District's Planning, Water Management, and Dam and Levee Safety programs all monitored and shared information about the flood impacts on their projects and activities in the area.

Damaging flows occurred in all five river basins, but on Mill Creek flows downstream of the reservoir were kept below flood stage. By mid-day on February 7th, a levee on the Walla Walla River in Milton-Freewater, Oregon, started to fail. The failure was too rapid



Milton-Freewater Levee failure. Destroyed levee centerline in red. (Walla Walla Basin Watershed Council, 2020)

for emergency response to keep up. Over 1,200 feet of levee was lost. Rains finally subsided, but with record peaks in all the basins, significant damages had been sustained. Many homes were flooded or completely obliterated on Mill Creek and the Touchet, Walla Walla, and Umatilla rivers. Field reconnaissance noted that in many locations, as a result of flooding damage, it was only marginally apparent that homes ever existed. Many bridges were lost or compromised within the affected basins, including some downstream of the flood mitigation infrastructure on Mill Creek.

The Walla Walla District team, including managers and staff from

several different programs, pulled together, continuously interacted, and communicated well throughout the event. After the immediate crisis, the district transitioned directly into recovery efforts. Rehabilitation is now under way on levees with emergent threat, while others are included in long-range repair plans. New data from these floods has informed planning studies on the Touchet River and Mill Creek.

Complete recovery will take time, as many of those displaced by the flood must make decisions about whether to rebuild. Communities are assessing their flood resilience as they make repairs, and the Walla Walla District is available and standing by to provide technical assistance as requested. ■■■

Port Monmouth, NJ, Partners With USACE New York District for Coastal Storm Defense

By JoAnne Castagna, USACE New York District

Hurricane Isaias stormed up the East Coast in early August, bringing heavy rain and 85 mph winds to the shores of flood-prone Port Monmouth, New Jersey. The New York District of the U.S. Army Corps of Engineers (USACE) reached out to assess how the community was faring, and how well the Port Monmouth flood risk management project was working.

Local resident Charles Rogers noted, "The system of tide gates and pump stations allowed all of the streets that normally flood under these conditions to drain properly. Port Monmouth fared well in the storm."

Middletown, New Jersey, engineer Ted Maloney observed, "It was good to see the system in action and performing as designed. This is empirical evidence that the Army Corps' floodgate and pumps worked swimmingly!"

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Port Monmouth, New Jersey Resident, Charles Rogers (Right) and Ted Maloney, Township Engineer for Middletown, New Jersey looking over the new flood gate and pump station operation at the Port Monmouth Flood Risk Management Project. Credit: USACE.



Levee at the Port Monmouth Flood Risk Management Project. Credit: USACE.

This type of responsive communication between USACE and the communities it serves is nothing new, especially with flood risk management projects. Active communication happens between and during storms. The [Port Monmouth Flood Risk Management \(FRM\) Project](#) shines as an example on the northern New Jersey coast.

Port Monmouth has been battered by flooding, blizzards and major storms for years, especially by Hurricane Sandy in 2012, which destroyed 750 homes and businesses and spawned the FRM project, scheduled for completion in 2023. "Sandy placed almost 4 feet of water in my house and 6 feet in my cellar, and we lost our heating, electric, food and personal items," said 82-year Port Monmouth resident Rogers, who has weathered his share of storms. Over time, these storms have eroded much of the natural beachfront and dune complexes that provide coastal protection to the community.

The FRM project's goal is to reduce the risk of flooding throughout the entire community. Coastal protective measures against storm damage may include dunes and berms, breakwaters, groins, or T-groins, all of which nourish beaches, causing sand to settle on nearby beaches. Dunes and berms depend on sand replenished by beach nourishment. Recently, tide gates were added to this menu of measures.

William Dixon, director of Coastal Engineering, New Jersey Department of Environmental Protection, said, "We have a long-standing, strong partnership with the Army Corps and work on a lot of projects with them. Partnership and collaboration are one of the reasons why New Jersey, the Army Corps, and local municipalities have been so successful in implementing so many projects, including the [very complex] Port Monmouth project."



Pier at the Port Monmouth Flood Risk Management Project. Credit: USACE.

Work that has been completed includes:

- Building up and widening the shoreline along Sandy Hook Bay by replenishing sand and constructing a new stone groin perpendicular to the shoreline. Groins are long, thin structures extending out from shore that interrupt along-shore water flow, limit sand movement, prevent beach erosion and increase resiliency.
- Constructing a mile-and-a-half-long, 15-foot-high protective dune to provide a natural barrier to the destructive forces of wind and waves.
- Adding 195 feet to a local fishing pier for expanded recreational use by the community.

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Groin at the Port Monmouth Flood Risk Management Project. Credit: USACE.

Public outreach works in two directions and has had vital effects in building this project. Among public participation steps, New York District has conducted public meetings while developing specific elements of this project, both to inform the public and to learn about public concerns. The dune construction led residents to ask for details, and after USACE and other agency teams held public meetings they agreed to construct a walking path to improve public access. Public concerns about the tide gate and pump station structures led USACE to conduct public training and system testing, which allayed concerns about cost and maintainability. Without the early public communication piece, project leadership might never have recognized these significant issues in sufficient time to act.



The new flood gate and pump station operation at the Port Monmouth Flood Risk Management Project. Credit: USACE.

Ongoing work includes construction of:

- An almost 6,600-foot-long (or 20 football fields) concrete floodwall to reduce flooding from Pews Creek to Compton Creek. A floodwall is a vertical barrier designed to temporarily contain the waters of a river or other waterway which may rise to unusual levels during seasonal or extreme weather events.
- A 7,070-foot levee system (the length of more than 23 football fields).

Because soil in the area was not strong enough to support a levee, USACE used an environmentally friendly soil stabilization process called In-Situ Soil Stabilization, which mixed the low-lying salt and freshwater marsh with cement and water, allowing it to support a levee system.

“Typically, we would dig up the marshy soil and haul it out and truck in new soil,” said David Gentile, USACE civil engineer. “By doing this process, we eliminated the need for over 1,750 tri-

axle truck trips, carrying wet, mucky, and odorous material through residential streets, as well as saved a great deal of money.”

As part of the defense surrounding Port Monmouth, pump stations, road closures and a tide gate at Pews Creek have been established. Tide gates allow water to flow freely under normal conditions but can be closed to prevent flood waters from swamping a community.

Rogers, who appreciates the USACE work with communities, said, “During the 1944 Great Atlantic Hurricane, my father placed me on his shoulders and walked through 4 feet of water to take me to my grandmother’s house. During Hurricane Donna in 1960, the area was evacuated, and my entire family were transported by the U.S. Coast Guard via an amphibious vehicle to the firehouse to safety, and during Hurricane Sandy in 2012, my house was flooded, and we lost a lot. Without the help of the Army Corps, flood-prone areas would never receive the protection needed to keep property and residents safe.” ■



Road closure structure and flood wall at the Port Monmouth Flood Risk Management Project. Credit: USACE.

The ABCs of Flood Risk Management for a Rural Community

By Brian Rast, USACE Kansas City District

Many communities do not have the staffing to get from A to B to C in flood risk management. Small rural communities commonly lack the resources they require to build resilience. They appreciate seeing these steps laid out:

- A. Identify the flood risk problem**
- B. Understand the best risk management options**
- C. Fund the measure (to build a feature or enable an activity)**

The gap between A, identifying the problem, and C, funding the solution, is too great a leap for many to go it alone. Federal agencies have many programs that help with the cost in C, especially with new FEMA grants this year (see sidebar, “Applying for Federal Flood Grants”). The Missouri Silver Jackets team took on the Harrisonville, Missouri, flood risk problem, and their story shows how Silver Jackets can set communities up for grants with other agencies.

Figure 1. Silver Jackets helped the city staff manage the public's expectations in the Board of Aldermen's meeting (KMBC News, October 7, 2019).



Step A

The Harrisonville journey from A to B began in 2017 with two major Muddy Creek summer floods. After an estimated \$1.2 million in damages, residents and businesses pressed the city to act. When another flood struck in 2019, the Missouri State Emergency Management Agency (SEMA) asked [Missouri Silver Jackets](#) for help.

The Silver Jackets team coordinated state and federal agencies for Step A; SEMA, the Federal Emergency Management Agency (FEMA), U.S. Geological Service (USGS), and U.S. Army Corps of Engineers (USACE) staffs formed a virtual team to address public concerns and mitigate potential conflict through public engagement. Everyone wanted more facts. For example, many property owners believed that the Missouri Department of Transportation (MODOT) culvert under the Interstate-49 (I-49) had clogged with sediment and caused the floods, but was this supposition true?

USACE approved a 2019 Silver Jackets interagency nonstructural effort to support public engagement and engineering analysis. The team used two models developed by USACE's Hydrologic Engineering Center; the models considered the whole drainage system and identified and measured the flooding problem (Step A). It turned out that the culvert had not been as significant a cause of flooding as suspected.

Based on the results of the modeling analysis, the team determined the most effective flood risk management measures (Step B). See the [Missouri Silver Jackets report](#) for a full description of measures. Moreover, the Silver Jackets team had included dam break modeling in the analysis, which improves planning for the aging Lake Luna and City Lake dams.

Public outreach was largely web-based; fact sheets and articles were locally disseminated on the [city web site](#). Among other things, the online information informed the public that sediment in the I-49 culvert had not caused the flooding in 2017.

Harrisonville's floodplain management planning and the community's and city leadership's understanding of flood risk and impacts of potential flood solutions have all improved through research by the team and ongoing public outreach.

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APPLYING FOR FEDERAL FLOOD GRANTS

Communities can use Silver Jackets products to apply for [FEMA's fiscal 2020](#) Hazard Mitigation Assistance (HMA) grants under the [Flood Mitigation Assistance](#) (FMA) and new [Building Resilient Infrastructure and Communities](#) (BRIC) programs, which are now open. All applications must be submitted no later than January 29, 2021, by applying through the [FEMA Grants Outcomes system](#).