We live in exciting times when it comes to the flurry of activities that are currently taking place on the Metro-East levee system. In addition to continued highest-priority support of the Southwest Illinois Flood Prevention District (FPD) Council initiative to achieve FEMA accreditation at 100-year level of protection by the year 2015, we have a host of federal projects on-going at various stages of completion for all Metro-East levee systems.

We have continued construction on Wood River Levee re-construction features (those things that have just plain worn out and need to be upgraded by repair or replacement), authorization to proceed with design and construction of relief wells to alleviate levee underseepage issues (when funds are received), and a study to address underseepage issues that have popped up in conjunction with the operating pool levels behind Melvin Price Lock & Dam.

In East St. Louis, we have several activities ongoing with the Metro-East Sanitary District (MESD) levee system, to include final elements of a re-construction project, and starting design for a relief well contract to begin to correct underseepage issues. In the combined Prairie du Pont & Fish Lake Levees system we are conducting a study to determine the most cost-effective means to correct the levee underseepage issues that are similar in nature to the levee systems to the north, and to reconstruct the remaining project features to return the levee to authorized level of protection.

The integrity of the Metro-East levee complex is vital to the regional and national economy, and the quality of life in tri-county area. We recognize the responsibility of the federal government, in partnership with the local levee districts and the citizens that thrive behind the levees, to ensure that you receive the level of protection that has been mandated by congress. I speak for everyone in our District, when I say that we are committed members of the Metro-East community.

From the desk of the Program Manager

**Federal projects bring flurry of activity to Metro East System**

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**100-year & 500-year level of protection: Merging to meet public needs, ensure life safety**

Conversations in recent weeks have led to confusion regarding the need for 500-year level of protection in the Metro East Levee System.

It is important that the work both the FPD Council and the Corps of Engineers are undertaking look beyond flood insurance toward public safety.

“I am concerned that if the focus remains on the short-term goal of FEMA accreditation, the FPD will incur additional costs when the Corps works with them to construct to a 500-year level of protection,” Bruce Monholand, Metro East Program manager, said.

“We are currently working with the Council to ensure their actions and the Corps plans remain focused on public safety and minimal operation and maintenance costs to levee districts.”

The levees of the Metro East system (Wood River Levee, Chain of Rocks Levee, Metro East Sanitary District and Prairie du Pont and Fish Lake Levees) were authorized by Congress to provide a 0.2% (500-year) flood chance level of protection, or 52’ on the St. Louis gage, with an additional 2’ as freeboard.

This level of protections is higher than that of the 100-year level of protection required for FEMA accreditation.

“We understand the motivation of the Southwest Illinois Flood Prevention District Council,” Munholand said. “However, we are required to build to the level of protection authorized by Congress.”

Munholand said the two goals- the short-term goal of FEMA accreditation, and the long-term goal of increased public safety- are being coordinated now as the Metro East prepares for construction.

Complementary plans, he said, will provide for a stronger foundation for the long-term and likely result in lower operation and maintenance costs over the life of the Levee Systems in the Metro East.
Complementary construction plans will reduce future costs for the Wood River Levee System

The Wood River Levee System was authorized for construction in 1938 to a height of 47’ on the St. Louis gauge in the Mississippi River. Forty-seven feet was the estimated height required to sustain a flood with a 200-year frequency of occurrence (0.5% chance of occurrence in any given year). Construction of the levee system began in 1949. Record floods were forecast for the area prior to construction completion that would exceed the authorized height of the levee.

In 1954, the St. Louis District Engineer recommended the levee be constructed to a height of 54’ on the St. Louis gauge. The 54’ that exists today was designed to pass a 500-year flood event (0.1% chance of occurrence in any given year). Construction was completed in 1955, and the Wood River Drainage & Levee District assumed responsibility for operation and maintenance.

In 2006, Congress authorized reconstruction of the Wood River System to ensure the continued level of flood risk reduction the citizens behind the levees had come to rely on. Reconstruction included replacing or repairing features that were operating at less than designed effectiveness, which consist of gravity drains, pump stations, and closure structures.

Reconstruction efforts began in 2007. At current rate of federal spending, the work will be completed in 2014. The current cost estimate for reconstruction is $37.58 million, which is split between the federal government and the levee district in a 65% federal and 35% levee district cost share agreement.

In recent years, we have seen a growing concern about the adequacy of the levee foundation, as evidenced by larger and more frequently occurring sand boils on the landside of the levees. Sand boils appear as something similar to artesian springs and carry large amounts of foundation material (usually sand) with them, and occur when the river rises and forces greater amounts of water to flow under the levees.

Approval was granted in 2011 to undertake efforts to control the levee underseepage and reduce the erosion of the levee foundation to ensure long-term levee stability. Construction is planned to begin in 2013 on 94 new relief wells, de-commissioning 83 non-repairable relief wells, surface water collection systems, pump stations, seepage berms, clay blankets, and nearly 3,000’ of subsurface water cutoff wall.

Total estimated cost of the underseepage correction measures is $46.5 million, to be shared at 65% federal and 35% local responsibility.

Southwest Illinois Flood Prevention District and Corps of Engineers Projects
Prior to the Corps of Engineers completing its underseepage studies, the Southwest Illinois Flood Prevention District was formed with the purpose of bringing the Metro-East Levee System to a 100-year level of protection. This level allows for FEMA accreditation in the National Flood Insurance Program. Where the completion of a federal levee project is typically stretched over several years due to congressional appropriation considerations, the FPD has developed a program to achieve its goal within the next 3 years.

Currently, the Corps is engaged in the FPD Council’s effort by ensuring the planned modifications to the Wood River System by the Council do not create additional problems with the levee system, or worsen those that already exist. While the modifications planned will generally improve the function of the levee and the level of protection, because it is a federally constructed levee, the Corps has the responsibility to ensure the system will eventually continue to operate at its original congressionally authorized design.

To accomplish that, the Corps must not only ensure the modifications by the Council do not harm the levee systems, but must also ensure that the 100-year levee modifications provide the best possible foundation to continue to the full 500-year level of protection.

Simply put, the river level for a 500-year flood event is substantially higher than the level for a 100-year event and causes increased pressure on the foundation of the levees. That increased pressure dramatically increases the likelihood of greater underseepage and foundation material erosion. It is important to evaluate if the 100-year modifications can withstand the 500-year conditions.

If they can’t, it may be necessary to enhance them or replace them in the future as part of the 500-year project. The Corps is working to ensure the FPD Council’s projects and the Corps’ projects complement each other to minimize the total cost.

Complementary plans will provide for a stronger foundation for the long-term and likely result in lower operation and maintenance costs over the life of the Wood River Levee System.