CONSTRUCTION ROUNDTABLE
INDUSTRY FORUM

FLOOD RISK MANAGEMENT
AND DAM AND LEVEE SAFETY

Colonel Jason Evers, P.E., PMP
District Commander

Mike Keathley, P.E., PMP
Deputy District Engineer

Huntington District

5 December 2020
FLOOD RISK MANAGEMENT
a legacy and mission dating back to the early 1900’s

- Flood Risk Management is one of the most prominent Corps mission areas within Civil Works – reducing loss of life and economic consequences while improving the natural environment.

- USACE has a portfolio of approximately 700 dams and 14,000 miles of levee systems – reducing flood damages by over $1.4 trillion.

- In FY 19, the Great Lakes and Ohio River Division (LRD) was allocated $201.7M under the flood risk management business line.

- Emergency Supplemental Appropriations in FY 18 and FY 19 provided an additional $20.7B for flood risk management investments.

- Over the next two years, LRD is projecting to award approximately 60 contract actions related to flood risk management efforts.
## DISTRICTS WITH FRM MISSION

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>CDR</th>
<th>DDE</th>
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<tbody>
<tr>
<td>Huntington</td>
<td>COL Evers</td>
<td>Mike Keathley</td>
<td>Eileen Hodges</td>
<td>304-399-5632</td>
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<tr>
<td>Louisville</td>
<td>COL Gant</td>
<td>Linda Murphy</td>
<td>Jeff Esterle</td>
<td>502-315-6460</td>
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<td>Nashville</td>
<td>LTC Avichal</td>
<td>Patricia Coffey</td>
<td>Kyle Hayworth</td>
<td>615-736-5940</td>
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<td>Pittsburgh</td>
<td>COL Short</td>
<td>Lenna Hawkins</td>
<td>Jeanine Hoey</td>
<td>412-395-7289</td>
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<tr>
<td>Buffalo</td>
<td>LTC Toth</td>
<td>Dave Romano</td>
<td>David Schulenberg</td>
<td>716-879-4263</td>
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<tr>
<td>Detroit</td>
<td>LTC Turner</td>
<td>Scott Thieme</td>
<td>Marie Strum</td>
<td>313-226-6794</td>
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<tr>
<td>Chicago</td>
<td>COL Reisinger</td>
<td>Steve Fisher</td>
<td>David Schulenberg</td>
<td>716-879-4263</td>
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DAM SAFETY

- **Overarching Goal**
  - Project life, property, lifelines, and the environment by ensuring all dams are designed, constructed, operated and maintained as safely and effectively as possible

- **Portfolio Risk Management**
  - Dam Safety Action Classification (DSAC) system provides consistent and systematic guidelines for prioritizing investments based on risk-informed processes to address dam safety issues and deficiencies
  - Dam Safety Investment Plan (DSIP) embodies the long-term strategy to manage the risk across the USACE portfolio of dams

- **USACE Portfolio**
  - More than 700 dams with an average age of 56 years
  - Reduced flood damages by $485B from 2004 to 2013
  - Six of the ten largest US reservoirs
  - Six of the ten largest US embankment dams
  - 50 percent of all federally-owned dams

*Source: 2017 Dam Safety Investment Plan (DSIP)*
**Ongoing or Upcoming Projects in LRD**

- East Branch Dam – seepage barrier
  - *Upcoming contract award for well rehabilitation – FY 20, Q2*
- Center Hill Dam – seepage barrier and saddle dike
- Bluestone Dam – rock anchors and mass concrete
  - *Upcoming contract award for stilling basin – FY 20, Q2*
- Rough River Dam – seepage barrier
  - *Upcoming contract award for seepage barrier – FY 21, Q4*
- Mohawk Dam – relief wells and collection system
  - *Upcoming contract award for relief wells – FY 20, Q3*
- Zoar Levee – internal erosion interception trench (IEIT)
  - *Upcoming contract award for IEIT – FY 20, Q4*
- Magnolia Levee – canal treatment and I-wall buttress
  - *Detailed design anticipated – FY 21 (contingent on funding)*
- Roush Dam – seepage blanket

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**Top 10 Remedial Dam Safety Actions based on 2017 Dam Safety Investment Plan (DSIP)**

- Riprap $0.5 B
- Anchors $0.8 B
- Filter $0.7 B
- Grouting $1.3 B
- Gate Rehab $1.6 B
- Concrete $2.0 B
- Earthwork $2.3 B
- Seepage Barrier $7.6 B

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**INSERT PICTURE OF CENTER HILL OR EAST BRANCH**
Existing Infrastructure
- More than ten million people live behind the over 14,000 miles of levee systems within the USACE Levee Safety Program
- Around 70 percent of this portfolio is operated and maintained by a local sponsor
- In LRD, there are 209 levee systems stretching 570 miles
- Goal of the USACE Levee Safety Program is to assess, manage, and communicate levee-related flood risk to people, property, and the environment
Public Law (PL) 84-99 and Rehabilitation and Inspection Program
- Provides authority to repair and rehabilitate qualified levee systems damaged by a flood event
- Within LRD, there are 209 eligible systems totaling 570 miles in length and protecting 677K people and properties worth more than $100B
  - Most systems were either built or upgraded during the 1950’s and are operated and maintained by local sponsors
  - Age and deferred maintenance related problems are common throughout LRD
  - Approximately 50% of local sponsors are either not eligible or not enrolled for Federal Rehabilitation funding
- Within LRD, 10 projects are currently receiving assistance through PL 84-99 (1-study; 6-design; and 3-construction)
  - Rehabilitation and repair investments are currently estimated at $32M
- Current repairs range from replacing pump parts and implementing streambank stabilization measures to installing seepage barriers

Repairs and New Investments
- Repairs to Federally owned and operated or construction of new levee systems
- Upcoming projects include
  - Lower Mud River – construction of levee and relocation of channel in Milton, WV
  - Johnson County – construction of floodwall in Paintsville, KY
  - Pike Levisa – design and construction of floodwall along Coal Run near Pikeville, KY
  - Louisville Metro – feasibility study evaluating reinvestment measures currently underway
  - Massillon – repair of erosion along toe of existing levee system in Massillon, OH

Lower Mud River Recommended Plan

Maysville, KY
Saw Mill Run, PA
USACE operates and maintains over 80 dams and all or portions of 12 levee systems across the region.

In 2019, LRD was allocated $139.7M to support the operation and maintenance of this flood risk management infrastructure.

Example maintenance activities include replacing or repairing bridges, painting and cleaning gates, cleaning and rehabilitating relief wells, replacing sluice gates, installing filter blankets, and stabilizing slips.
Continuing Authorities Program (CAP)
- Section 14 provides authority to address streambank erosion issues impacting public infrastructure
  - LRD has 7 Section 14 projects in the study phase and 8 Section 14 projects in the implementation phase
- Section 205 provides authority to implement small-scale flood risk management measures with a maximum Federal cost of $10M
  - LRD has 10 Section 205 projects in the study phase and 13 Section 205 projects in the implementation phase

Nonstructural Measures
- Nonstructural measures reduce flood damages without significantly altering the nature or extent of the flooding
- Example nonstructural measures include: relocations, acquisitions, elevations, and redevelopment sites
- Ongoing and upcoming work includes acquisition/floodproofing of numerous structures, relocations of multiple public facilities including schools, and construction of a redevelopment site
63 PLANNED CONTRACT ACTIONS

**Planned Contract Actions by Type**
- 19,30% (N/A)
- 44,70% (TBD)

**Planned Contract Actions by District**
- Buffalo: 12
- Chicago: 12
- Detroit: 6
- Huntington: 4
- Louisville: 4
- Nashville: 6
- Pittsburgh: 31
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<tr>
<th>Category</th>
<th>Number of Actions</th>
<th>Total Investment Low Estimate</th>
<th>Total Investment High Estimate</th>
<th>General Description</th>
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<tr>
<td>Stone Supply</td>
<td>1</td>
<td>$1,000,000</td>
<td>$5,000,000</td>
<td>Armor Stone Supply</td>
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<tr>
<td>Vertical Construction</td>
<td>6</td>
<td>$85,100,000</td>
<td>$325,250,000</td>
<td>School Construction, Resident Engineer Office</td>
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<tr>
<td>Road Repair and Paving</td>
<td>8</td>
<td>$2,700,000</td>
<td>$8,500,000</td>
<td>Levee &amp; Dike Construction, Levee/Streambank &amp; Shoreline Protection &amp; Restoration, Redevelopment Site Construction</td>
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<tr>
<td>Earthwork</td>
<td>5</td>
<td>$1,750,000</td>
<td>$6,500,000</td>
<td>Levee &amp; Dike Construction, Levee/Streambank &amp; Shoreline Protection &amp; Restoration, Redevelopment Site Construction</td>
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<tr>
<td>Concrete, Deck and Siding Repair</td>
<td>7</td>
<td>$10,875,000</td>
<td>$26,850,000</td>
<td>Repair Spalling Concrete and Concrete Joints, repair roofs and decks</td>
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<tr>
<td>Seepage &amp; Erosion Control</td>
<td>5</td>
<td>$21,000,000</td>
<td>$50,000,000</td>
<td>Cut-Off Wall, Relief Well Installation, Collector System Upgrade, Erosion Interception Trench, Filter Berms/Blankets</td>
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<tr>
<td>Steel Cleaning &amp; Painting</td>
<td>2</td>
<td>$500,000</td>
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<td>Bridge cleaning &amp; Painting</td>
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<td>Dam Construction</td>
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<td>Anchor installation and major stilling basin construction</td>
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<td>Ventilation system and pump installation</td>
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<td>Ship Building and Repairing</td>
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<td>Relief Well Design, Geotechnical Services, A/E services, Surveying</td>
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LESSONS LEARNED

- Utilization of Joint Risk Registers
- Construction Partnering
- Industry Days (PDT – Industry Collaboration)
- Pre-Bid Conferences
- Participation in local Small Business Conferences
- Early submittal of questions during contract solicitation to allow timely responses and amendments
QUESTIONS?

Bolivar Dam

East Branch Dam

Bluestone Dam