

2016 USACE ANNUAL LEVEE INSPECTION REVIEW

Prepared by Anthony Heddlesten, PE, CFM
US Army Corps of Engineers, Rock Island District
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OVERVIEW

- A little basics about USACE & Flooding
 - 2016 Inspections & Results
 - Q&A
-
- GEAD
 - Engineer Warning!!

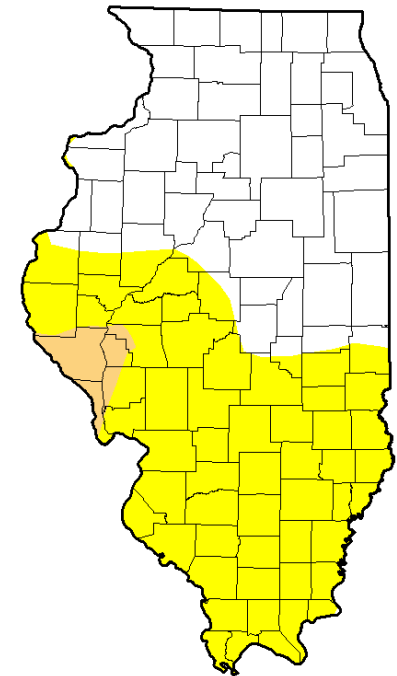


HOW DO YOU THINK ABOUT WATER?

- What is “a lot” of water?
- What is “too much” water?



File Name



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HOW DO YOU THINK ABOUT WATER?

Source	Flow in CFS	% of PRAI2
Low Flow Faucet	0.00111	0.000002
Normal Faucet	0.0049	0.000009
East Peoria WWTP	7.737	0.01
2-yr 1-day Rain	249.3	0.4
Mackinaw (last week)	432	0.8
100-yr 1-day Rain	571.2	1
Illinois River (last week)	9,770	17
Mackinaw (Flood)	16,400	28
Illinois River (Flood)	57,028	100



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WHY DO WE TALK ABOUT WATER?

- USACE constructed MANY levees, dams, channels, etc. throughout the region to help manage those CFS
- USACE inspects levees throughout the region annually (or biennially for non federal systems)
- Inactive systems get inspected as time, money and Colonels allow
- USACE provides emergency management services (temporary water, advance measures, flood fight technical assistance, pumps, poly, sandbags, Hesco, etc.)
- USACE provide programmatic assistance through the CAP, PAS, FPMS, Silver Jackets programs



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WHAT YOU NEED TO KNOW LOCALLY

- How to request assistance – ALWAYS start with your County EMA & let me know if you think that request is headed my way
- How to get into the PL84-99 Program –
Send us a letter! It's easy!

US Army Corps of Engineers
Clock Tower Building
1500 Rock Island Dr
Rock Island, IL 61201
ATTN: Emergency Management Division

The City of X is requesting an inspection for the [describe your project] to qualify for the PL84-99 program. The inspection can be scheduled with [your name & contact info].

Sincerely,
[The Mayor or PW Director or someone important like that]



WHAT YOU NEED TO KNOW LOCALLY

- How to request reviews of the other programs (Civil Works Policy Guidebook):
http://www.mvr.usace.army.mil/Portals/48/docs/Outreach/CivilWorksPolicyGuidebook_March2014_web.pdf
- How to do a project at a levee district:
<http://www.mvr.usace.army.mil/Portals/48/docs/EM/Example%20Section%20408%20Review%20Request.pdf>
- How to request post flood assistance:
<http://www.mvr.usace.army.mil/Portals/48/docs/EM/FillAppRehabAssistFlood.pdf>
- How to apply for a SWIF:
<http://www.mvr.usace.army.mil/Missions/Flood-Risk-Management/Levee-Safety-Program/SWIF/>



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LEVEE INSPECTION RESULTS

- Do inspections annually for Federal systems and at least biennially for non-Federal systems
- FY17 – collected 3363 points
- FY16 – collected 3926 points
- FY15 – collected 2806 points
- A point is any item on a levee district that the USACE inspector wanted to call the attention of the levee district to
- This reflects a 5 state area and hundreds of miles of levees



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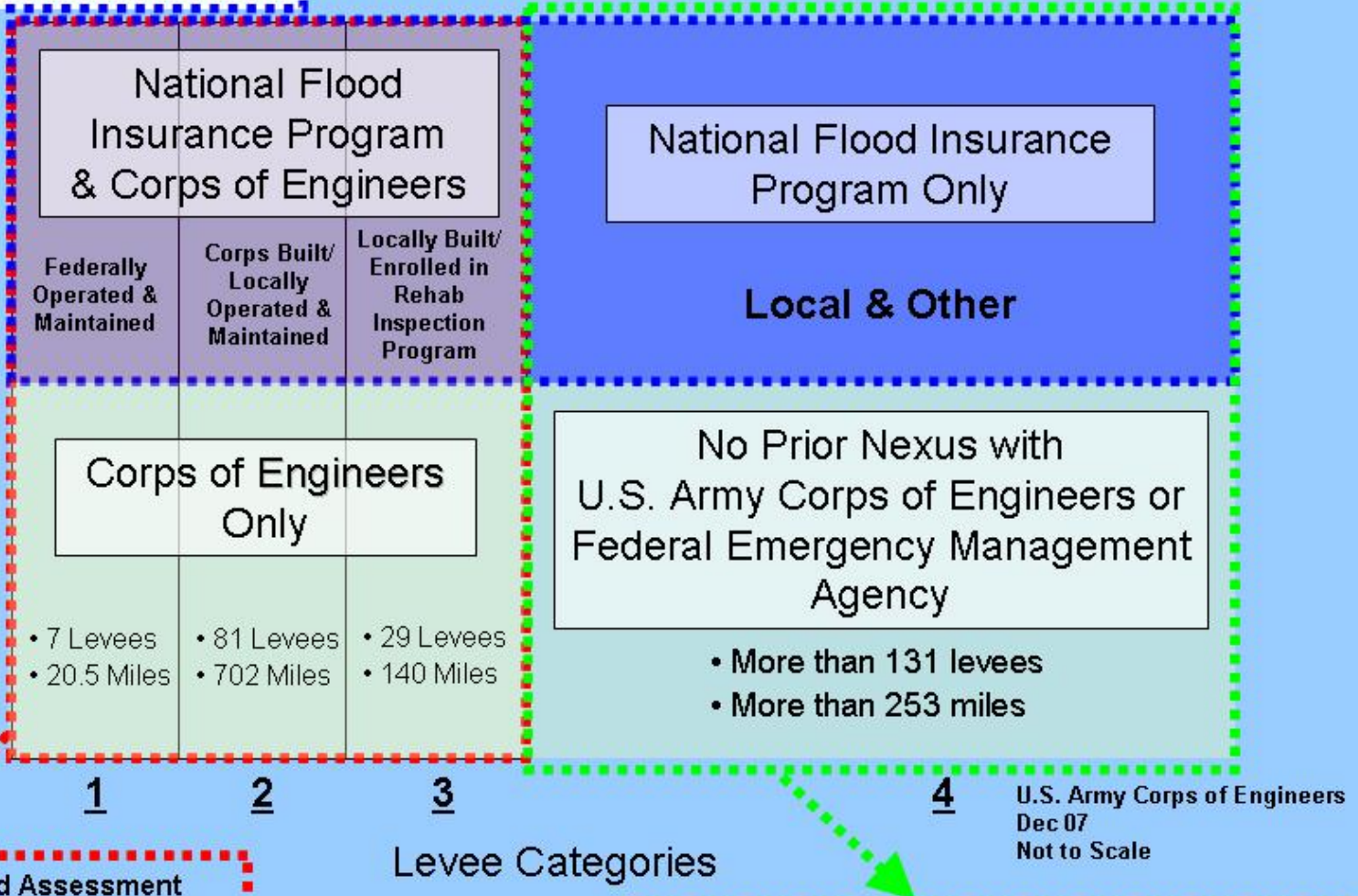


Rock Island District Universe of Levees

**Federal Emergency Management Agency
National Flood Insurance Program**
Objective: Communicate the most current information for flood insurance purposes.

100-year

Level of Protection



Corps Inventory and Assessment
Objective: **Assess** all levees in Corps programs, regardless of level of protection.

WRDA Authorities
Objective: **Inventory** all levees in nation, lead strategic plan for a National Levee Safety Program

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Dec 07
Not to Scale



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LEVEE SYSTEM ANALYSIS

- 2012-2014 was the periodic inspection push
- More points were collected in this time frame than ever before
- Many of those points became 2 years old (thus unacceptable) in 2016 – hence the jump from FY16-FY17 inspections.
- New inspection lead engineer in FY17 as well, more strict



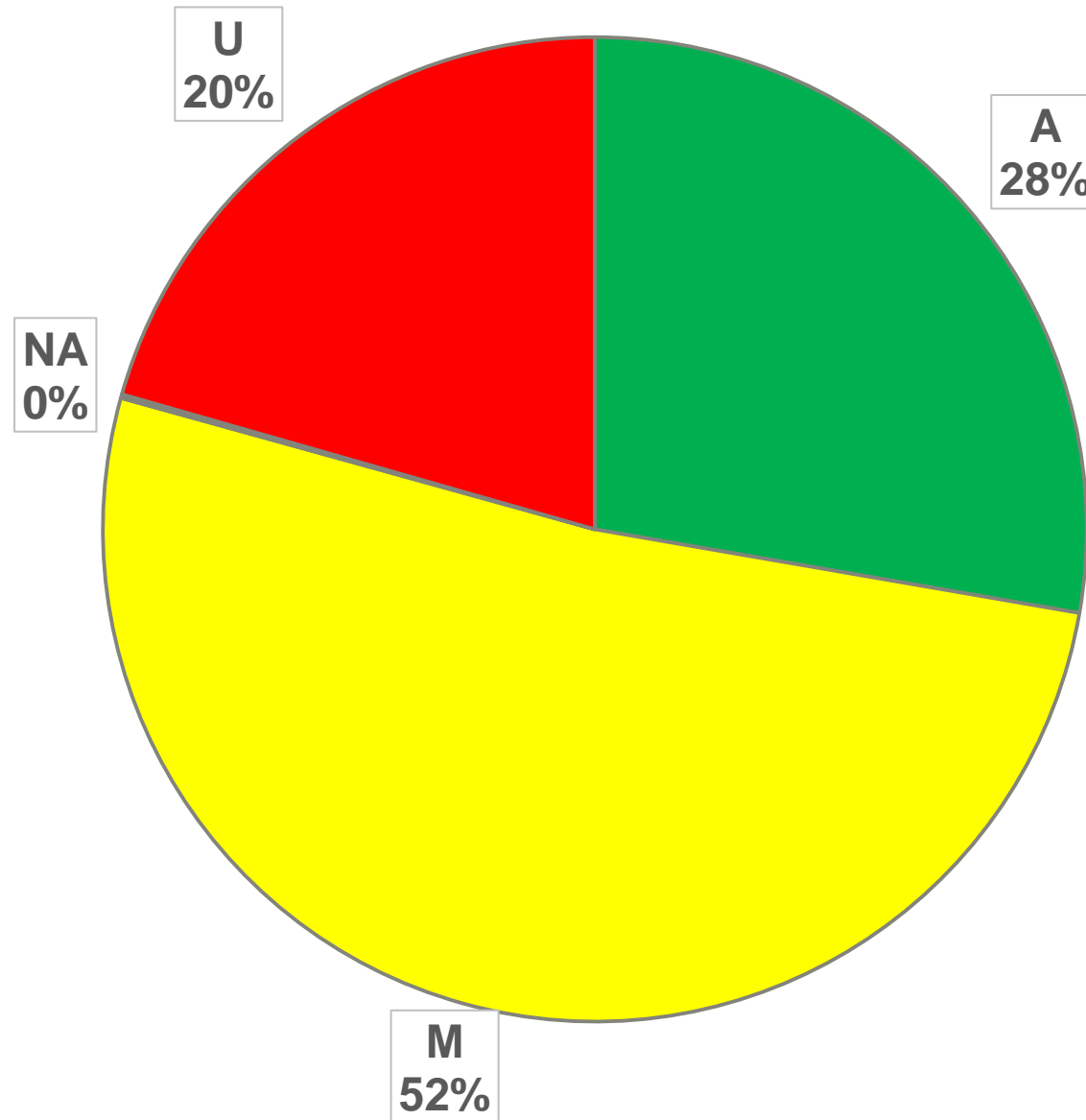
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2406/3363, 71.5%

63 levee districts

FY17 - Illinois Levees



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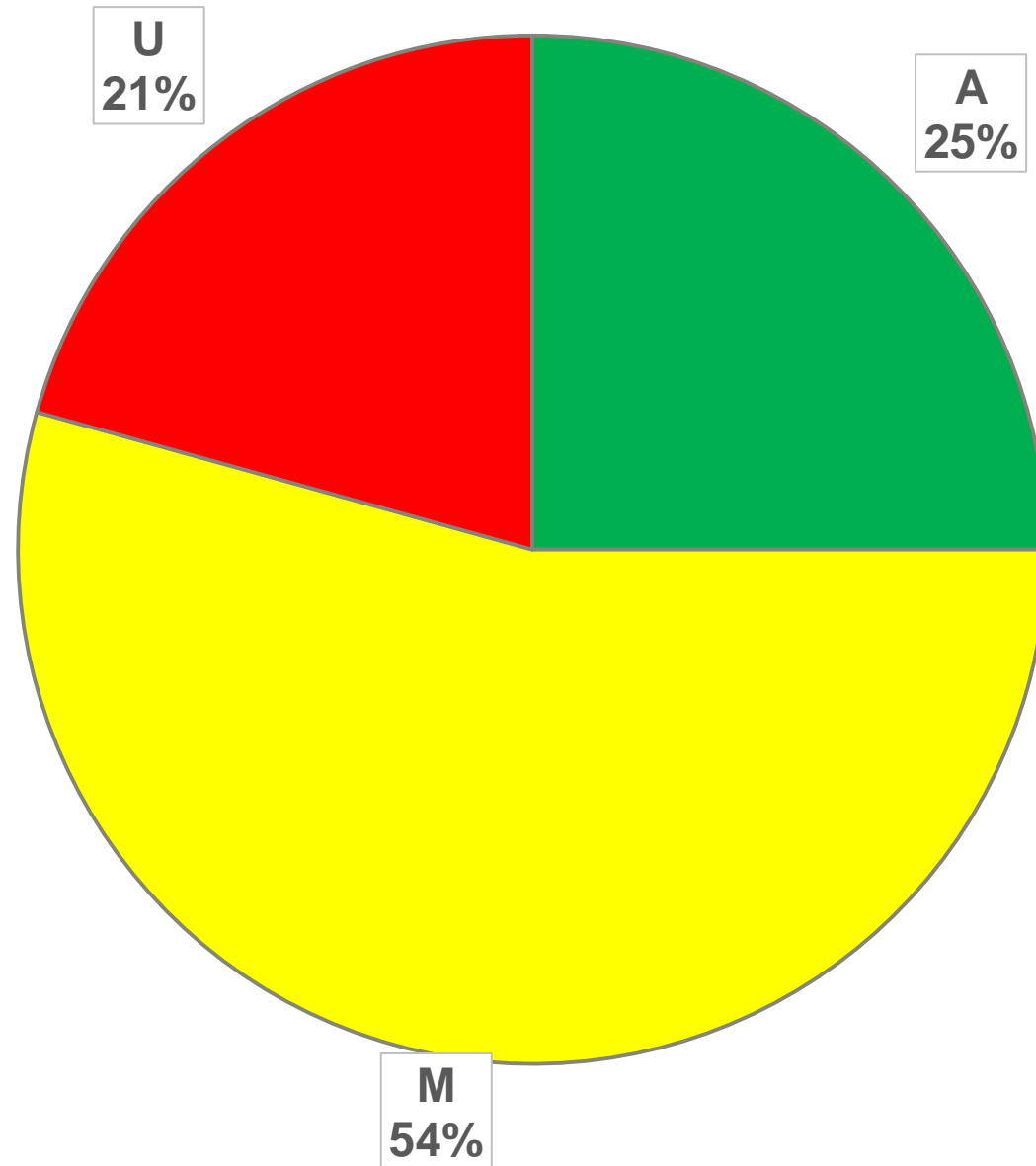


FY17 - Missouri Levees

464/3363, 13.8%

12 levee districts

(the missing data is in
Minnesota, Wisconsin
has no MVR levees)



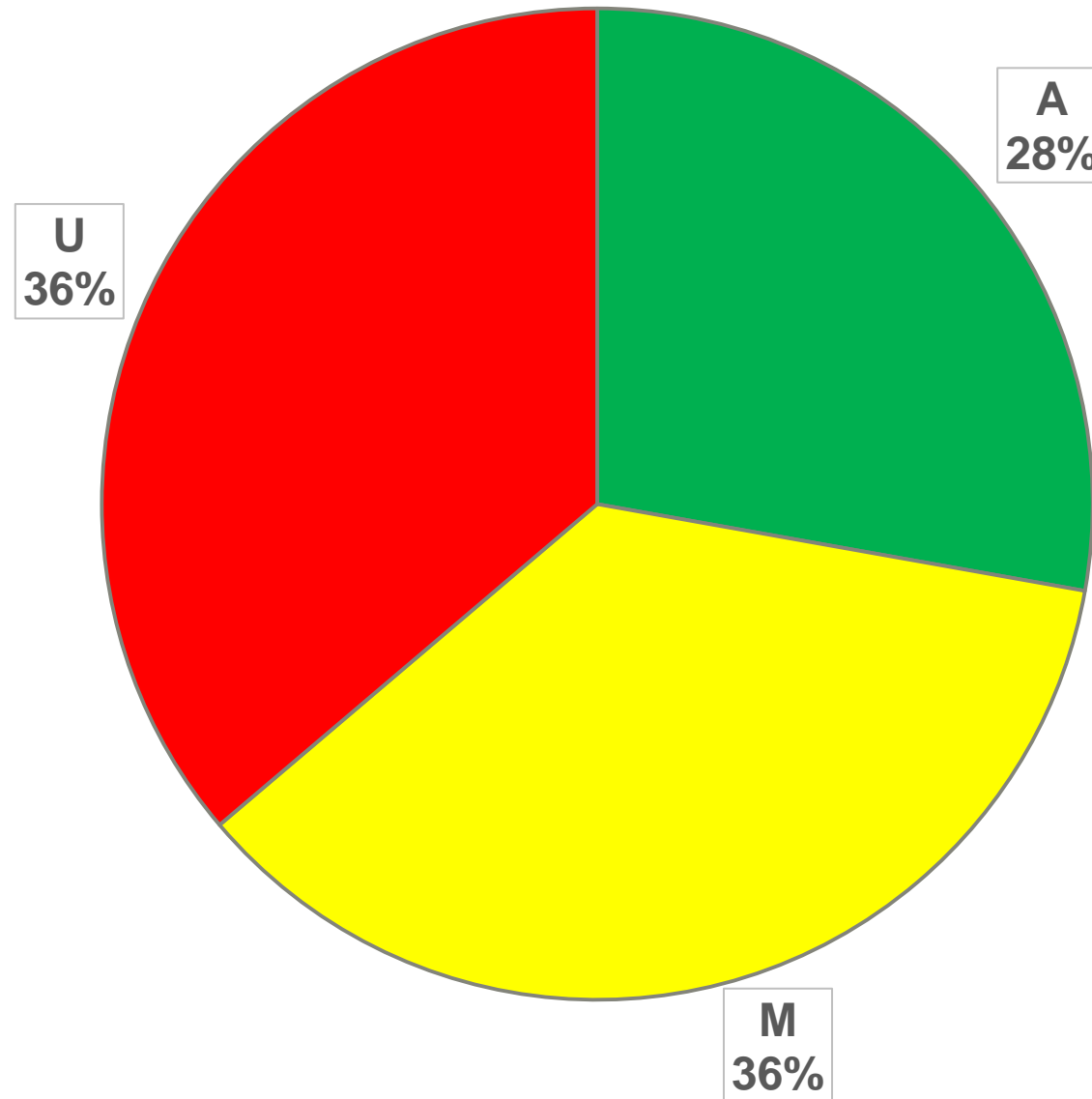
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464/3363, 13.8%

FY17 - Iowa Levees

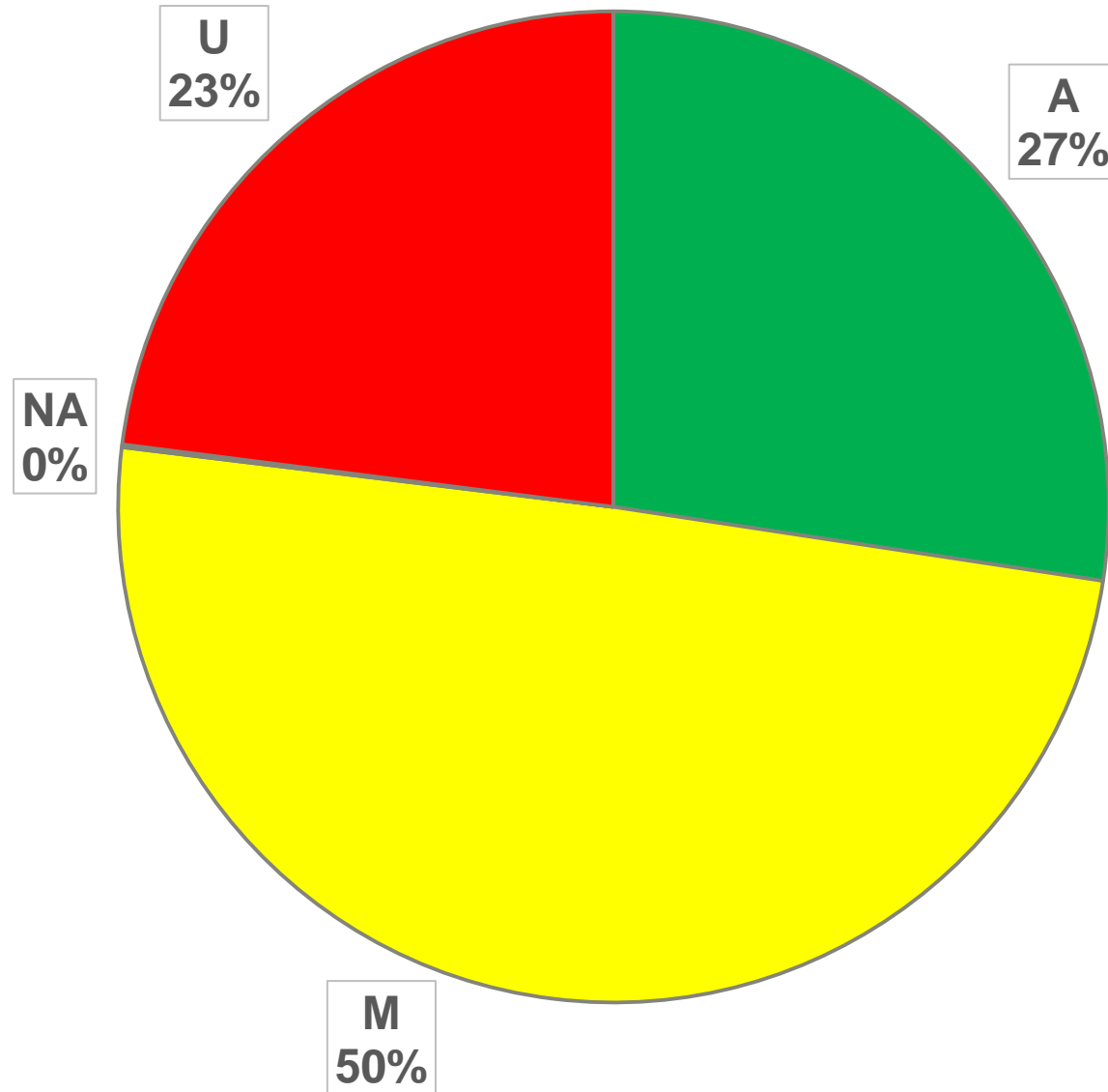
21 Levee Districts



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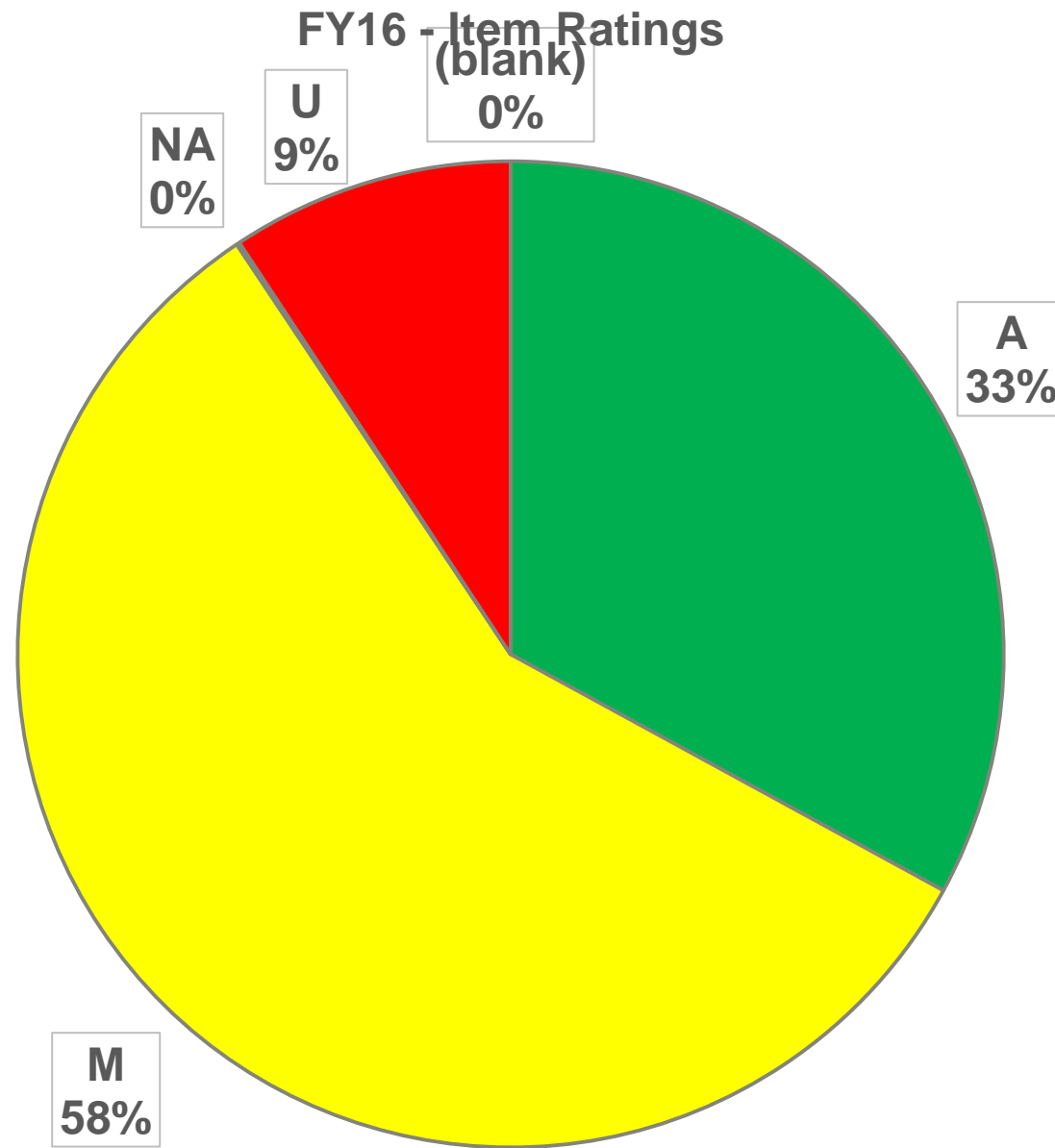


FY17 - Item Ratings
(blank)
0%



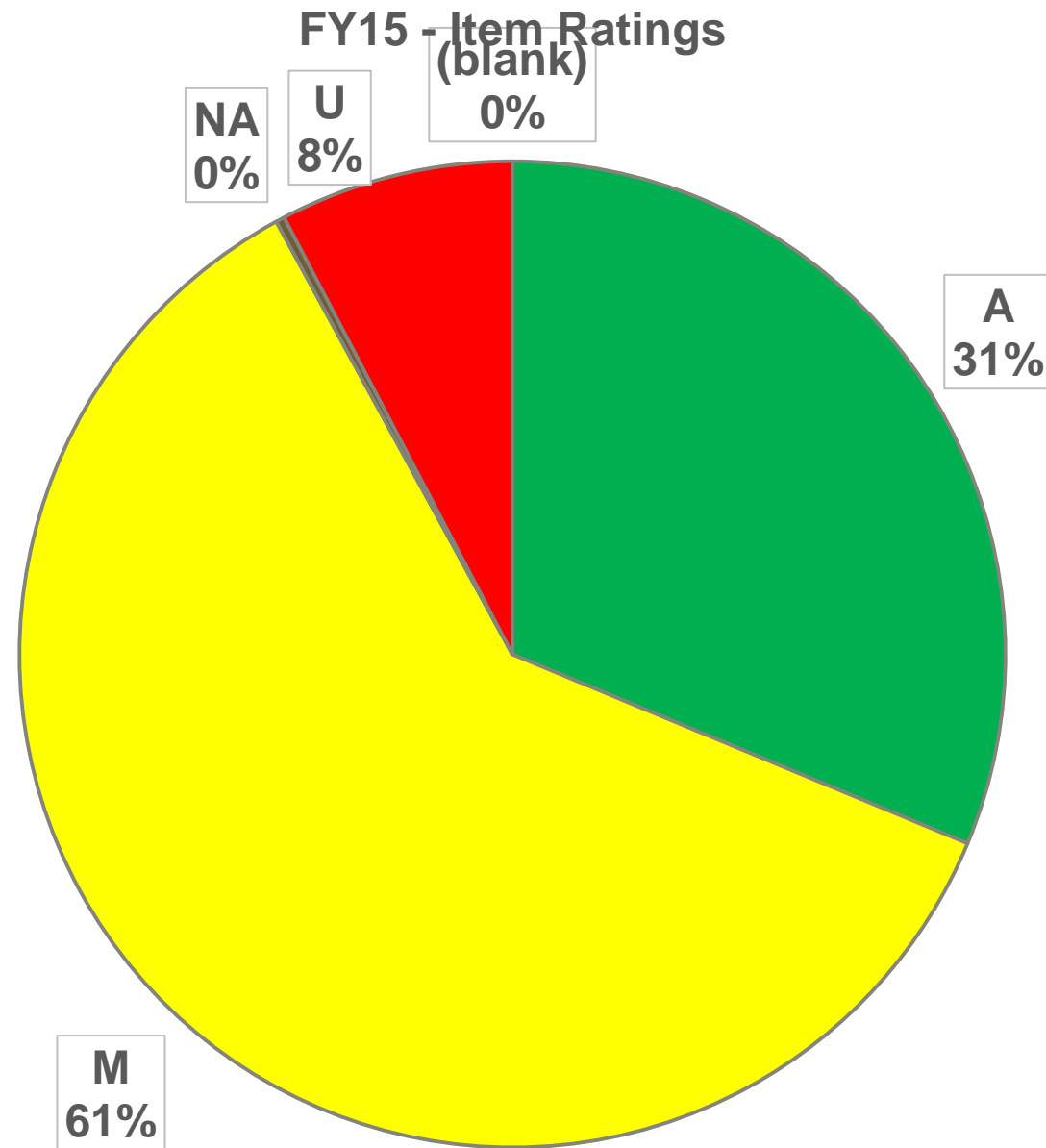
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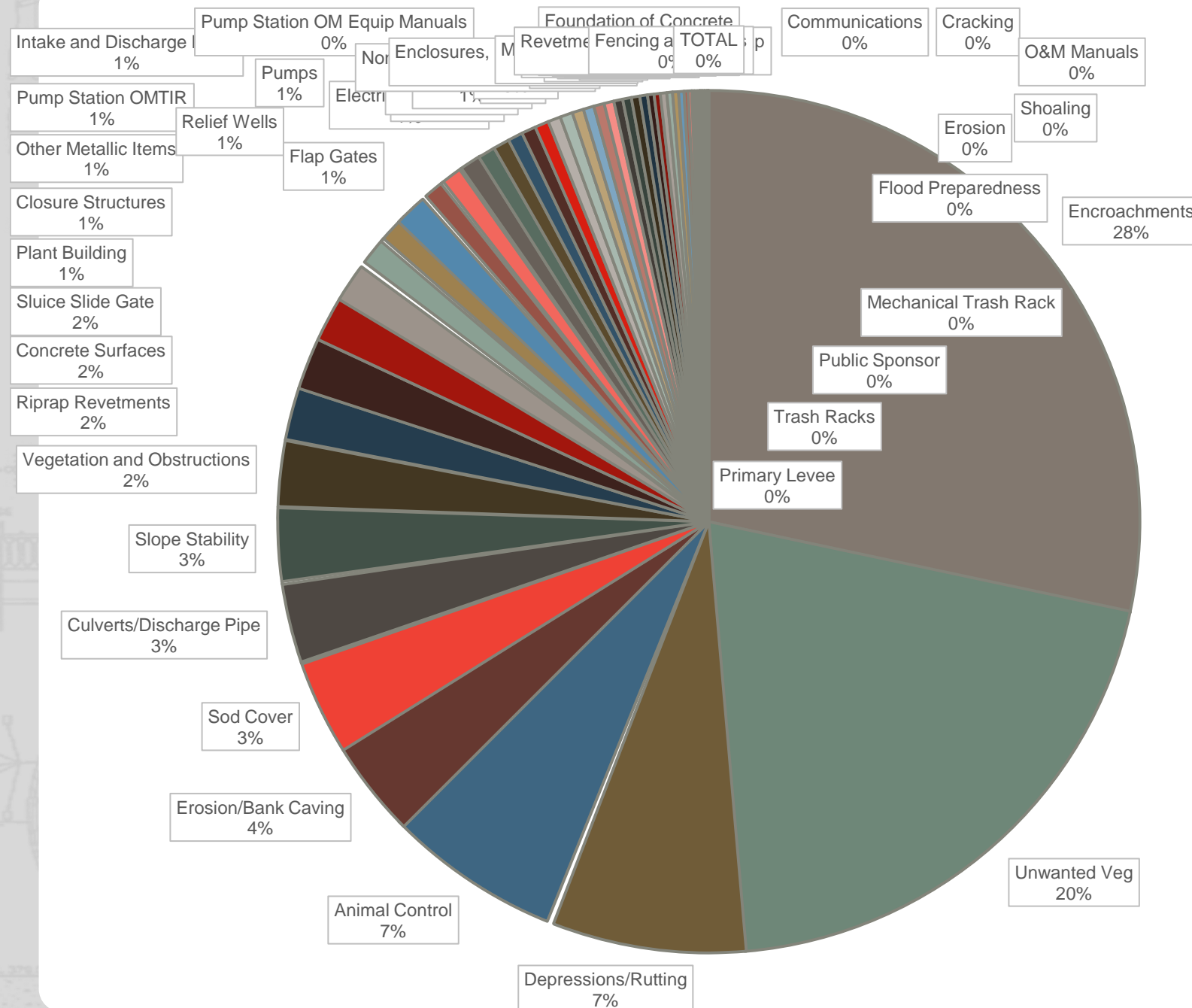
FY16 INSPECTION REVIEW

- The following figures and data reflect the FY2016 levee inspection cycle.
- 1,961 points were resolved by the inspectors, indicating that the levee sponsors had repaired them during the 2015 calendar year. (approximately 1/3 of the points)
- 427 points were listed as typical conditions, indicating that they were standard places that inspectors should check, but generally, no issues were there. (7%)
- 1,676 points were listed as monitor, which is the automatic label for new points AND a list for points that merit long term monitoring by levee districts (28%)
- 1,858 points were unresolved, indicating that they were noted on a previous inspection report, but not repaired by the levee district during the 2015 calendar year. (just under 1/3 of the points)



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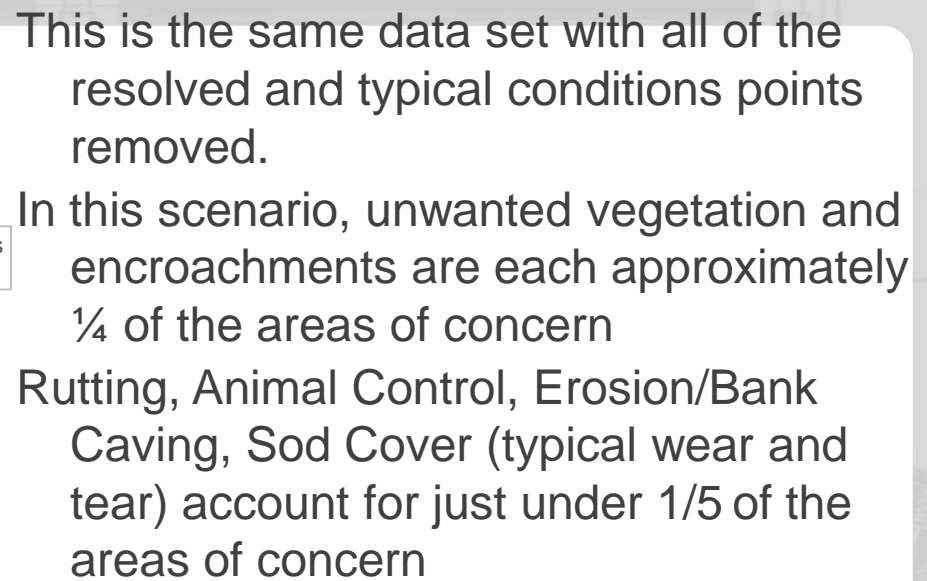


- Encroachments (i.e. 408 program) are over ¼ of the issues identified in FY16
- Unwanted Vegetation Growth (i.e. vegetation variance form) is 1/5 of all of the issues
- Rutting, animal control, erosion/bank caving, sod cover (i.e. basic wear and tear to the infrastructure) is 1/5 of all of the issues
- The remaining appx ¼ of the points are a mixture of all sorts of varying levee, floodwall, channel and pump station issues.



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CATEGORIES THAT ARE DID NOT IMPROVE IN FY16

- Indicates that new points (monitor) are larger than old points resolved. (M&U points only)
- In order of # of points: Encroachments, Unwanted Vegetation, Animal Control, Erosion/Bank Caving, Sod Cover, Culverts, Slope Stability, Riprap, Concrete Surfaces, Sluice/Slide Gates, Plant Buildings, Pump Station O&M & Training, Relief Wells, Intake & Discharge Pipes, Flap Gates, Megger Tests, Monolith Joints, Tilting/Sliding, Riprap, Seepage, Pump Station O&M manuals, Non-Mech Trash Rack, Cranes, Settlement, Foundation of Concrete, Revetments other than Riprap, Shoaling, Flood Preparedness, Mech Trash Racks

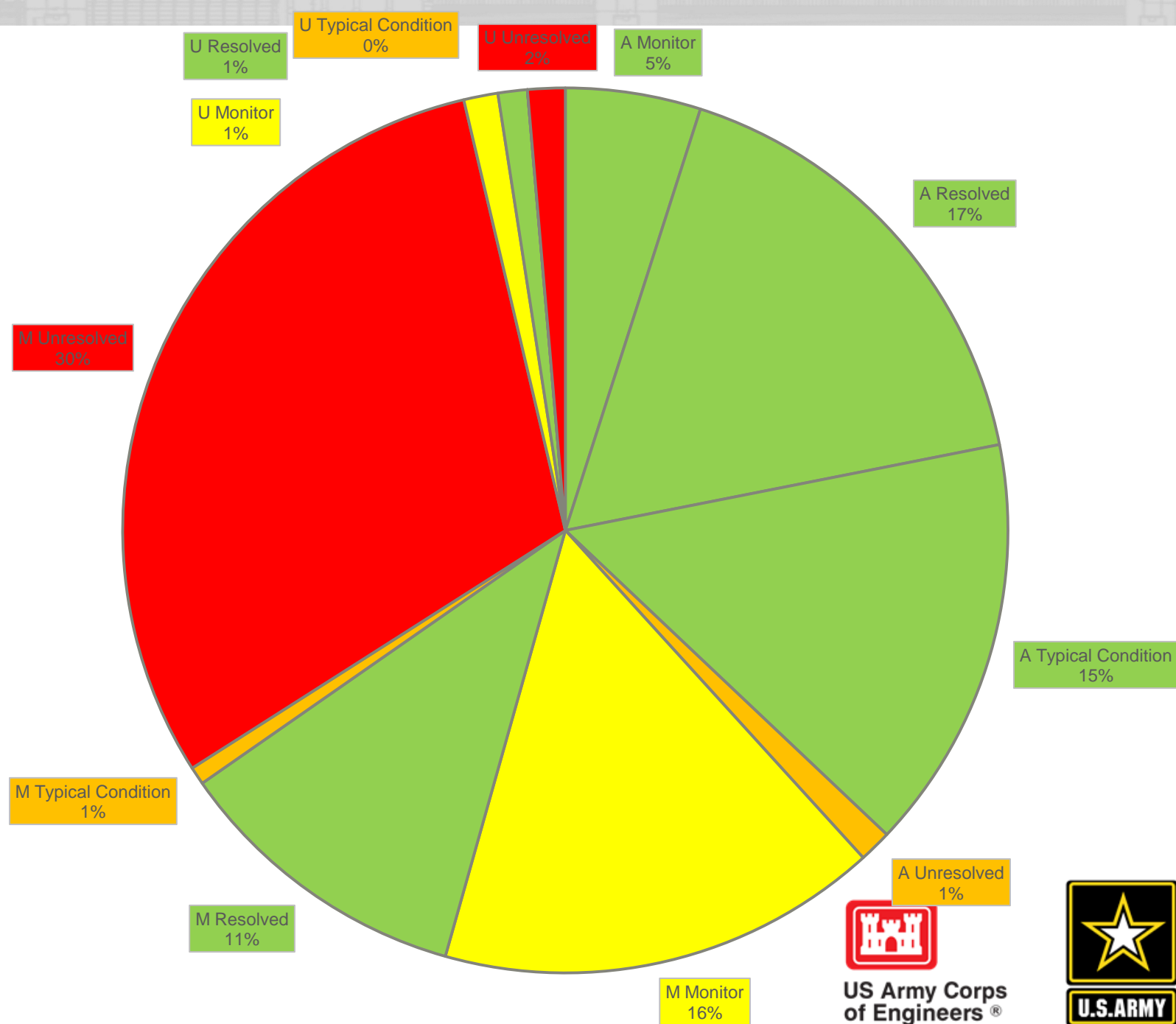


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ENCROACHMENTS

Unacceptable Encroachments only
account for 4% of issues
29% of points were resolved
33% of points were unresolved
M – Typical Condition, A
Unresolved are erroneous data



TEACHABLE MOMENTS - ENCROACHMENTS

- 25% of all the issues are encroachments (i.e. people adding things to the levees without permission)
- Need to make everyone aware of where federal levees are (visit www.nld.usace.army.mil to see a map!)
- Need to teach about 408
- Need to push our levee districts to enforce their right-of-ways (may take some assistance from local courthouse to define easements)

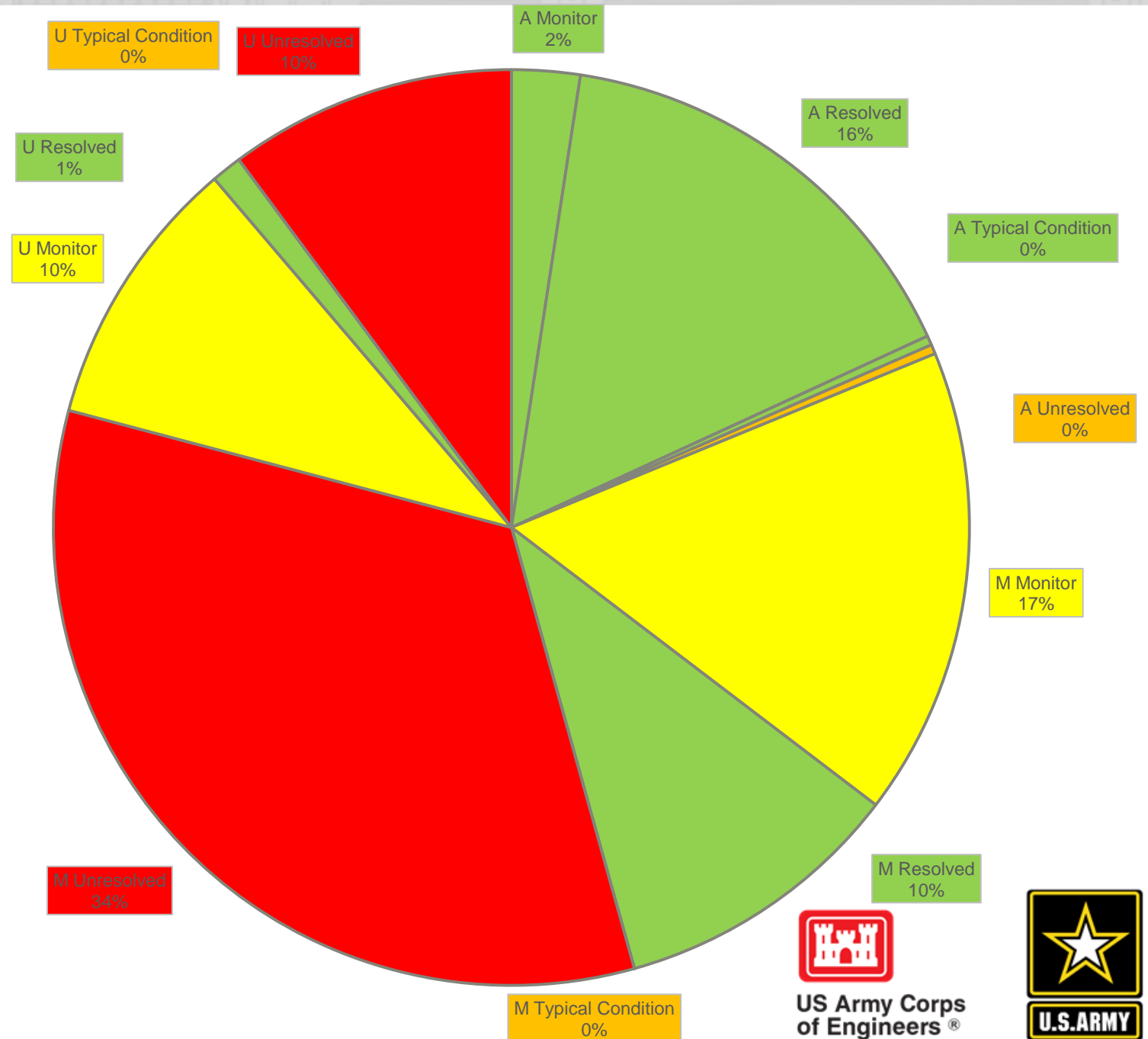


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UNWANTED VEGETATION GROWTH

44% of points were unresolved from previous years
27% were new points (10% U, 17% M)
27% were resolved (effectively a wash with new points)
21% of points were Unacceptable



TEACHABLE MOMENTS - VEGETATION

- Again, approximately 25% of all points are about vegetation
- Hard to maintain every square inch of 1,000s of miles of levees on shoestring budgets
- Need to teach about vegetation variance requests
- Need to develop lists of best grass mixes that reduce maintenance and keep down trees
- Need to develop best practices for riprap tree removal
- Need to see what the best frequency of mowing is to keep down trees and brush
- Need to develop methods to maintain vegetation during and after floods when mowing/maintenance is not possible

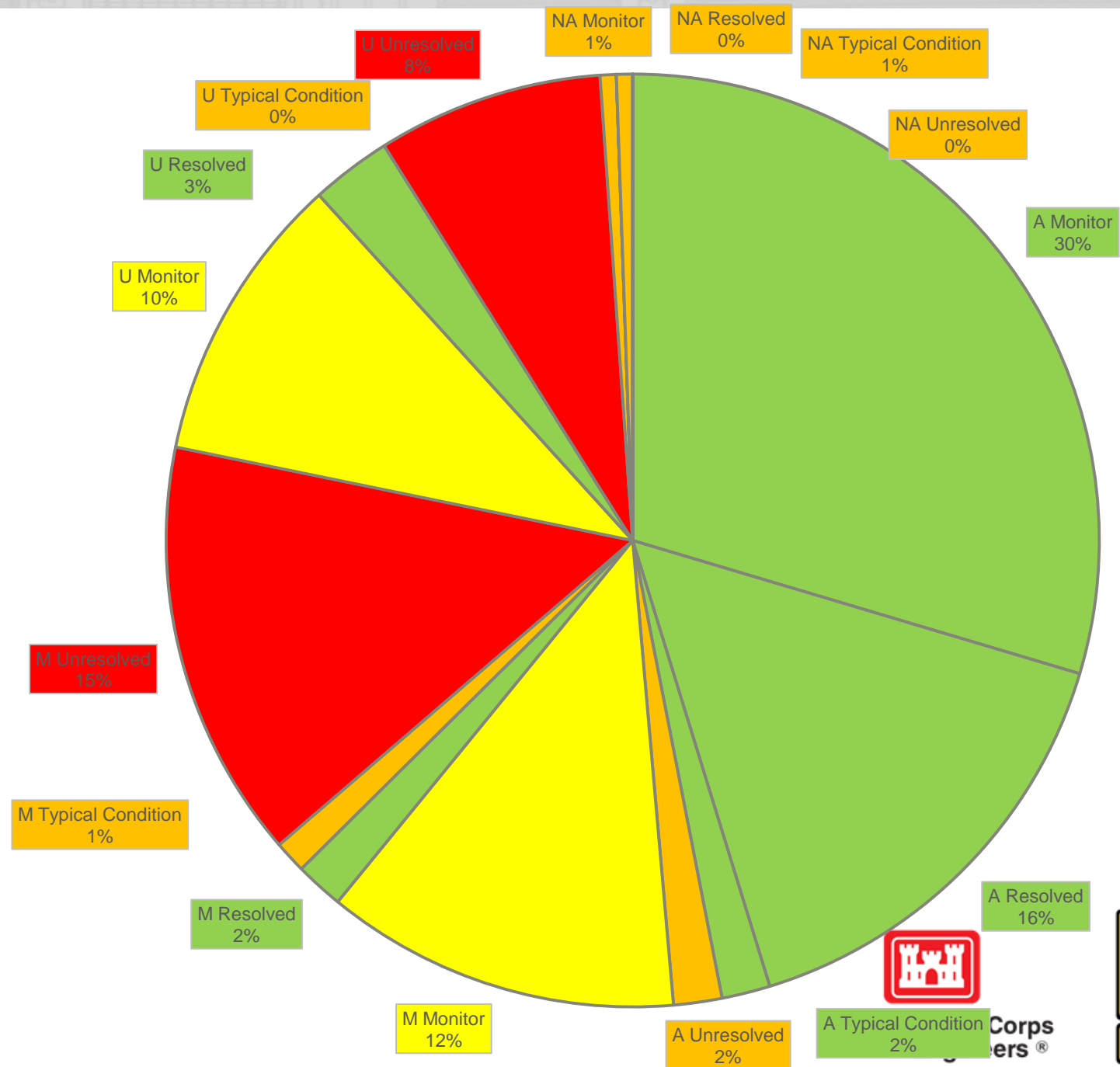


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CULVERTS

53% resolved or acceptable
23% unresolved
22% monitor (new points)



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TEACHABLE MOMENTS – THE NEXT 25%

- **Erosion/Bank Caving/Slope Stability – erosion/bank caving is 4%, slope stability is 4%**
 - Need to teach about when to add riprap
 - Need to teach about CAP Section 14, 401/404 process, 408 discussion, repair requests, benefit-cost-ratios (these are all methods to add riprap)
- **Animal Control is about 6% of all the points (third biggest category)**
 - Need to initiate discussion on best methods of removal of animals
 - Need to discuss more often how to repair burrows
- **Depressions & Rutting is about 5% of all the points (fourth biggest category)**
 - Need to talk about levee crown maintenance & how to keep people off levees
 - Need to discuss alternatives for things such as roads and bike trails atop levees to maintain the crowns
- **Culverts/Sluice/Slide Gates/Flap Gates – Culverts are 4%, Sluice Gates are 2%, Flap gates are 1%**
 - Discuss inspection process, 5 year cycle visual inspections and minimum requirements
 - Who have people used to inspect?
 - Who has equipment available to rent?
 - The annual testing requirements for gates in addition to the 5 year camera inspections



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TEACHABLE MOMENTS – THE LAST 25%

- **Pump Stations have 22 categories, 6 of which register 1% (6% total)**
 - Need to provide good examples of maintenance & operations logs, O&M manuals
 - Need to show how to acquire O&M manuals for old pumps and motors
 - Need to explain Megger tests and how to utilize them
 - Need to better define good building maintenance
 - What paints work well for consistently submerged equipment?
- **Flood Walls have 10 categories, 3 of which register 1 or 2% (4% total)**
 - How do you monitor movement of concrete structures? How often to monitor?
 - When is it time to patch spalling concrete?
 - How to maintain joints in large concrete structures & what is the best filler material?
- **Riprap is approximately 3% of the points**
 - Discuss methods of riprap management (approved sprays, how to cut vegetation in riprap safely, filling riprap with soil and planting on top)
- **Sod Cover is approximately 2% of all points**
 - Discuss best seed mixes for longevity in water/slope areas



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TEACHABLE MOMENTS – THE LAST 25%

- **Relief wells are 1% of the points**
- Review the requirements for testing and explain how we'll verify if they pass or fail in the future
- **Seepage is 1% of the points**
- What is expected from this?
- How can it be reduced? When should you consider a long term rehab project?
- **Closures are 1% of the points**
- When and how should testing be completed?
- What sort of agreements need to be in place?



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CONCLUSION

Your doors to the Corps

- Levees, Silver Jackets, Flood Risk – Anthony (La Moine to Fox River)
- Regulatory, permits, that-guy-next-door-is-flooding-me-out – Donna Jones
- Direct Assistance – County EMA (nothing will be provided by USACE without County & State approval)
- The many CAP/PAS programs – I can help, but when possible, mail a formal letter to USACE Colonel at Rock Island.
- Recreation questions – Project Office
- Locks & Dams questions – Project Office



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UPCOMING EVENTS

Mar 9 – Spring Flood Outreach - Jacksonville

Mar 24 – Spring Flood Outreach – East Peoria

Mar 29 – Spring Flood Outreach – Iowa City

Flood Zone Alliance – we're looking for group 2!

<http://www.senatorrezin.com/Illinois-Valley-Flood-Resiliency-Alliance>



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QUESTIONS?

Anthony Heddlesten, PE, CFM
Clock Tower Building
1500 Rock Island Dr
Rock Island IL 61201

Anthony.d.Heddlesten@usace.army.mil

309-794-5886 (office)

309-429-0348 (work cell) ← this will be on 24/7 during a flood event

www.mvr.usace.army.mil



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