**Notice of Funding Opportunity (NOFO) Webinar Series: Application Pitfalls**

**September 1, 2020 at 2:00 – 3:30 p.m. EDT**

Alix Shutello: Before we get started, if you cannot see this screen, please log off and then back on. Make sure you are on Wi-Fi and not on your VPN, if that applies. This session has two parts. The first is a 40-45 minute prerecorded webinar followed by live Q&A. Since there is no call-in number, please make sure your speakers are on and your microphone is off. If you have technical issues regarding your Adobe connection, email [FEMA-HMAComms@FEMA.DHS.GOV](mailto:FEMA-HMAComms@FEMA.DHS.GOV). The Q&A pod on the right of your screen is for application pitfall related questions only. Note that there is a planned silence between the end of the webinar in the start of the live Q&A session. This is done on purpose as not everyone's video experience is at the exact same speed. Also, these sessions are being recorded and will be posted to FEMA.gov at a later date. So, now we will begin the webinar. Thank you and enjoy.

Kayed Lakhia: Good afternoon everyone, my name is Kayed Lakhia, and I am the director of hazard mitigation at FEMA, and I’m here to kick off the application pitfalls webinar for FMA, Flood Mitigation Assistance and BRIC, Building Resilient Infrastructure and Communities pre-disaster mitigation programs. Hopefully some of you were able to attend our BRIC Summer Engagement Series webinars in July and our August NOFO and tribal NOFO webinars. The Application Pitfalls webinar navigates areas to focus on when doing applications for FEMA’s grant programs. We will make some general observations about applications before talking about best practices. We have a section dedicated to acquisition and elevations, another to wind retrofits, wildfire mitigation, energy resiliency, seismic retrofits, and safe roofs. We want to make sure that the best projects get funded, not just the most sophisticated ones. To enable that, we have made sure that these webinars give you the best tools available to put these applications together. Before we get started, I want to go through a few housekeeping items. Please make sure if you’re on a government laptop, you sign off the VPN and join over Wi-Fi only. That will greatly improve your experience today. Today’s session is being recorded so that we can share a link with stakeholders and partners who are not able to attend. The webinar portion of the session is going to last approximately 60-minutes and after that we will answer questions live. Note, however, that while FEMA is answering questions live, participants can only ask questions through the Q&A pod on the right-hand side of the screen. If you have technical questions or are experiencing technical difficulties, please e-mail our help desk, the address of which is on the left-hand side. It is [FEMA-HMAComms@FEMA.DHS.gov](mailto:FEMA-HMAComms@FEMA.DHS.gov). A moderator will respond to you directly for technical questions only. As a helpful tip, technical problems can be mitigated by signing off and signing back in, clearing your computer cache and turning on the speakers. Please note that today's presentation and other resources can be downloaded. Refer to the file pod on the lower left-hand side of the screen. Now, let's begin. This session is being led by Manny Perotin and Eric Kenney, who have both been part of the application review process for a number of years. Upon the conclusion of the webinar, we will come back to kick off the live Q&A portion of the program. With that, I wish you all the best to compete for this BRIC program and I look forward to seeing some exciting projects to further resilience in our nation. With that, let’s get started with Eric. Thank you.

Eric Kenney

Thank you Kayed for the introduction. As Kayed mentioned, my name is Eric Kenney and for the last 4 years I’ve managed (with my co-presenter Manny Perotin) the contractor support for the review of Flood Mitigation Assistance (FMA) and Pre-Disaster Mitigation (PDM) grant applications – I’ll refer to this as the National Technical Review or NTR. I’m excited to be able to spend some time today highlighting some best practices in this cycle as well as identifying some of the more common pitfalls that can be used to continue to improve applications being developed for the first year of BRIC as well as FMA. Next Slide please.

Today our agenda covers 5 primary areas. We’ll start with a brief overview of the application cycle – what did we see in terms of application numbers, proposed federal share and what kind of projects. Then we’ll touch on some overall observations that are common to most of the project types; high level pitfalls and best practices. Next, we’ll move into project type specific observations – what particularly did we see for the 8 project types we see the most of. We’ll wrap up the recorded portion of this session with a few key Recommendations for application improvement and then we’ll move into the Q&A portion. As Alix mentioned, please feel free to type questions as we go and we’ll address as many of them as we can at the end. Let’s move to the next slide and look at what we saw this year and what did well.

This year, under PDM, we received 321 applications for a federal share of approximately $475 M. We saw slightly fewer applications under FMA 167 sub applications - $290M in federal share over. These numbers focus on projects – management costs, planning and advanced assistance add to these numbers and exceeded the $460 M available under both programs

So, what went well this year – where do we want to maintain our successes? 338 of the applications we reviewed passed the NTR – that is they were found to be cost effective as well as technically feasible and effective. Passing NTR doesn’t mean a project gets selected –funding limitations and applicant / FEMA priorities come into play but passing NTR is an important step and where we focus.

We still see the highest number passing (160) for the acquisition and elevation project types, but a few other areas I’d like to call attention to, 19 flood risk reduction projects passed for a total of $33 M, 33 utility and infrastructure protective measures (over $130 M), and 39 safe rooms and 40 energy resiliency (captured here as generators) make up another $60 M. Overall, the 338 projects that we were able to move forward, total $495 million in federal share (again this is excluding management, planning and advanced assistance applications) so we continue to see these programs being oversubscribed. Next slide please.

Where is there room for improvement? Over 68% of the projects passed NTR review which means about a 1/3 --- 151 applications did not make it through the NTR review. Here I want to pause and note that about a 1/3 of this number – 50, were not reviewed by our team because they were determined to be ineligible. This equates to just under 10% of the total applications not making it into technical review.

The most common reason for this was an incomplete application – missing critical information such as a Benefit Cost Analysis. Less common issues included applications under FMA not benefitting insured structures as well as sub applicant eligibility issues .

Taking out these ineligible projects, we get a closer look at projects that did not pass the NTR review. This subset is 101 projects and 66% of them are in the flood risk reduction or infrastructure retrofit group – projects that would be likely candidates for the BRIC program. If we look at just those two project types, we see that approximately 44% passed the NTR, so that is a key area where improvements can be made. Generally, we see projects with either BCA concerns or BCA and technical feasibility concerns, it’s very rare that something is considered cost effective, but not technically feasible. The 101 projects that did not pass NTR have review memos prepared summarizing the issues we observed and we’d recommend looking at those memos as we view them as key tool for continued improvement in the application. If you haven’t seen them, I’d recommend reaching back to your State or Region. With that I’ll move into some general observations starting with some of the common pitfalls we see in the applications. Next slide please.

The first one I want to touch on is the scope conflicting with industry standards. We may see an elevation project that does not meet the requirements of ASCE 24, the application may state that the elevation will be to the Base Flood Elevation, rather than the Base Flood Elevation plus 1 foot. Cases like this may not prevent a project from moving forward, but if for example the vulnerability assessment compares the performance to a Risk Category 2 building, but the structure is a critical facility – we may not have enough information to be confident the proposed project will meet the design requirements. We also see where the design information conflicts with the before and after mitigation damages. For example – the design may state that the project will be built to withstand a 100-year flood, but the modeling provided shows flood elevations at the 50 year event exceeding the design elevation. Alternatively, the application states damages start at the 10-year event, but the information provided indicates that the structure is currently protected to the 25-year event. Documentation is critical. If assumptions are provided without a discussion of the basis for them, the reasonableness of them may not be able to be evaluated and because this is a competitive program – we’re not able to ask questions. Similarly we may see a wind or seismic retrofit without a vulnerability assessment – without knowing the pre-mitigation conditions, we may not have the information to determine if the proposed mitigation measure is technically feasible and effective to mitigate the identified risk. Finally – inconsistencies across the application especially as it relates to the level of protection. Understandably, it’s often not the same person preparing design material, developing the BCA or entering data into eGrants (or now – FEMA GO) so there can be a disconnect here. The review is based on the information provide and if there are discrepancies or inconsistencies and the correct value isn’t clear – we’ll use the conservative data which may impact the BCA. Speaking of BCA’s next slide please.

We see 3 main areas in the BCA’s that are common pitfalls. First – the basis for estimating damages (pre- and post-mitigation). The benefiting area of the project needs to be defined. We may see county level data summarizing the losses from a flood or hurricane event, but the portion of that that will be mitigated by the specific project isn’t identified or the entire impact of the event may be used – even if it’s not directly applicable to the project. If the mitigation project involves a building – it’s important to accurately capture the building type such as residential vs. commercial, one story vs multi-story and the lowest floor elevation. A small change in the lowest floor elevation or changing the building type can have a significant impact on cost effectiveness. For a utility hardening projects, we’ll see applications that include the entire population of a town as the population served by the utility, but in looking at the utility layout and the mitigation plan, it’s clear that the water line or electrical line that is being mitigated services a fraction of the total population so accurately calculating the population served is key Finally – and moving the discussion to Recurrence Intervals - we would generally expect the damages to increase as the severity of the event increases. If the BCA shows $5 worth of damages at the 100-year event and $50 at the 10 year without supporting documentation it could indicate a data entry error and issues around Recurrence Intervals are fairly common. Sticking with pitfalls around RIs, Each year we see an application or two that uses the RI as the time between events, rather than the statistical likelihood of the event occurring. Similar events that occurred twice in the last 6 years, are not necessarily 3 year events … a 100-year event can occur in consecutive years. Related to RIs – and if you have the BCA tool calculate RIs based on a damage history this can also be affected by the Analysis Duration. If a number other than the default value is used – documentation needs to be provided. he BCA Reference Guide and Supplement discuss acceptable documentation for adjusting the analysis duration. Finally, if a value other than a FEMA standard value is used anywhere in the BCA– supporting documentation needs to be provided. This allows the reviewer to understand and validate the data entry. The new BCA tool doesn’t require attachments, but they still need to be provided and – as a best practice – including a short narrative supporting the entries, assumptions and data sources allows the reviewer to understand and confirm the data entered in the BCA accurately reflects the project.

This concludes the overview portion and now I’d like to turn things over to Manny Perotin, our Project Technical Lead who will talk about project type specific observations for eight of the project types we see most consistently as well as cover some recommendations.

Manny Perotin

Thank you, Eric, for the introduction. Again, my name is Manny Perotin and I am a Project Technical Lead for CDM Smith and I’ve been the technical lead for our application review process under FEMA’s Hazard Mitigation Technical Assistance Program for the past 4 years. If you have questions during my presentation, please provide them in the Q&A Box on the right and if possible please put the slide # or topic in front of the question. We intentionally recorded this session to allow us to focus on responding to questions while playing the presentation So Eric provided an overview of statistics on applications recommended for further consideration as part of the National Technical Review process and common pitfalls. I am going to focus on pitfalls by project type, starting with Flood Risk Reduction. Next slide Please

A few best practices with flood risk reduction projects include: First and foremost, providing pre and post hydrologic and hydraulic OR H&H modeling with water surface elevations for multiple recurrence intervals as well as estimated and documented lowest floor elevations for structures (or elevation of vulnerable infrastructure like roads). I would equate this to a vulnerability assessment of the watershed, this information is essential to confirming the feasibility of the project. Particularly it helps provide an understanding of the probability of flooding along with the magnitude or depth of those floods. With those depths it is possible to quantify the magnitude of damages in dollars. Second include preliminary designs, ideally at least 30% design, along with a cost estimate. The level of service (or protection, SAY the design is intended to protect to a 50-year level) should be consistent with the scope of work/objective of the project as well as the level of effectiveness assumed in the benefit-cost analysis. And finally include a narrative explaining the benefit-cost analysis and describing the basis for estimating damages or documenting historical damages as well as any other assumptions and outline how documentation is organized. For example, several BCAs are now considering sea-level rise, you should include documentation to basis for estimating sea level rise over the life of the project AND how sea-level rise was incorporated into the design/level of protection.

Some common pitfalls with flood risk reduction projects include no documentation for historical damages, no basis for the loss of function duration OR downtime, and/or no explanation for the recurrence intervals assumed in the analysis. A very common example is historical damages are based on community wide data or articles versus the area specifically benefiting from the project. With respect to recurrence intervals, the unknown frequency calculator within the BCA tool can be used however you must have a minimum of three events over a period of at least ten years. Another common pitfall is lack of documentation for assumptions made in the analysis. For example, a BCA based on estimated damages that has no explanation of how the flood damages were estimated or how the flood depths were used to calculate flood damages were estimated. We often review applications where the after-mitigation damages are inconsistent with level of protection described in the scope of work or the preliminary design. For example, the BCA assumes no after mitigation damages until a 100-year recurrence interval however the design and scope of work are based on a 25-year level of protection. With respect to technical feasibility it is essential to document the project is a stand-alone solution that solves a problem independently or that it constitutes a functional portion of a solution. Some applications include a watershed study or stormwater master plan, indicating the proposed project is identified in the study or master plan but does not clearly explain the project is a stand-alone solution. Finally there is no statement or documentation to address potential up or downstream impacts as part of the flood risk reduction project, in some cases projects specifically indicate that there are up or down stream impacts and state they may consider them during the permitting process but do not include a narrative on potential solutions nor cost to account for implementing them.

Next slide

Now I’m getting into the second of the project areas. For Acquisition and Elevations it is important to properly identify the flood risk, there are a variety of tutorials and resources to help you read a Flood Insurance Rate Map or FIRM if you have not referenced one before. If you are estimating flood risk based on local watershed study be sure to provide the flood hazard information as documentation.

With respect to pre-determined benefits and efficiencies established by FEMA to support evaluating the cost effectiveness of acquisitions and elevations, it is essential you properly apply the conditions in the policy. For example, if you are applying the substantial damage efficiency for acquisitions you must provide a substantial damage determination for each building. If you are applying pre-determined benefits for acquisitions and elevations, you must show the building is in the Special Flood Hazard Area (or SFHA) – this can be based on an effective FIRM, preliminary FIRM, or a Base Level Engineering BLE map. Regardless of type of map, it is critical you show the property location on the map and verify it is within the floodplain. Note, if you have multiple structures in a project where some BCA are based on precalculated benefits while others are based on a complete analysis, you cannot combine benefits across each methodology. For example, if I have a project with 25 elevations and 15 are based on precalculated benefits and 10 are based on a complete analysis, the 15 precalculated benefit structures should be cost effective standalone and the complete analysis for the other 10 should be cost effective as well. Finally, with respect to conducting a complete analysis and using the modeled damages approach in the BCA tool it is essential you apply the correct lowest floor elevation. The BCA tool has built in help menu and instructions on selecting the correct lowest floor elevation depending on the type of building and foundation. There are additional resources related to determining lowest floor elevation on FEMAs benefit cost analysis website as well.

OK so before covering wind retrofit projects, just a reminder If you have questions during my presentation, please provide them in the Q&A Box on the right and please put the slide # or topic in front of the question. Now I will cover wind retrofits projects. Some best practices related to wind retrofits are as follows. First confirming the building envelope like the roof cover, wall covering, and fenestrations often referred to components and cladding along with the structural system or the Main Wind Force Resisting System can resist current basic design wind speeds or whatever the level of protection that is desired by the project Similar to an H&H study for flood risk reduction projects, a best practice is to include a wind vulnerability assessment for the building indicating the components that must be addressed as part of the retrofit. These assessments are normally done by a design professional like an architect or structural engineer. In addition to a vulnerability assessment, ensure the products and materials specified for use in implementing the wind retrofit are rated for the basic wind speeds including windborne debris protection requirements based on the project location. Finally, including scope and budget for inspections while the retrofit is being implemented along with post construction certification to ensure the level of protection desired is met and vulnerabilities were properly addressed is encouraged. You get what you inspect.

With respect to common pitfalls, one is using products that are not specified for use in implementing the wind retrofit are rated for the basic wind speeds OR using products with known vulnerabilities like screens or films. Some screens only assist with reducing debris impact but not wind loads and pressures, films as a retrofit are typically more effective at reducing the risks of blasts than wind protection. Not performing a vulnerability assessment to identify components that need to be addressed before developing and submitting the application. For example, projects that reinforce large bay doors or propose installing shutters over windows without evaluating the conditions of the roof which incurs the greatest wind loads. Finally, a common oversite with non-residential wind retrofits is a lack of documentation to support the loss of function impacts associated with the facility. Typically, this is based on the annual operating budget for the facility or the number of people served by some critical facilities. Note, similar to acquisitions and elevations there are predetermined benefits for residential and non-residential wind retrofits, you are encouraged to consider and evaluate the applicability of this efficiency to your projects.

Moving into wildfire mitigation projects. First and foremost, clearly document the site boundaries for hazardous fuels reduction projects. Some applications state the intent to address XYZ acres but do not state where those acres are. For defensible space measures or ignition resistant construction ensure you identify the proposed benefiting structures. At a minimum identify the neighborhoods and number of structures within the area the project intends to address. Finally ensure scope and activities are eligible and consistent with the FEMA HMA guidance like defensible space measures (perimeter), Ignition-resistant construction (materials), or Hazardous fuels reduction (vegetation management). Ineligible activities include hazardous fuels reduction in excess of 2 miles from structures, irrigation of vegetation to avoid disease or drought-related infestation, and projects for the purchase of fire-related equipment like fire trucks or equipment to accomplish eligible work like chainsaws, chippers.

Next, I’ll focus on energy resiliency, and for the most part, this includes generators. One of the first things you’ll want to focus on is identifying critical functions the project will address along with the capacity needed to power those functions, including the capacity needed to start motor driven products. Secondly, the proposed scope must be a complete solution –the scope AND cost estimate include a transfer switch, fuel storage, and any other equipment needed to properly install the generator. In addition, the generator is properly elevated and in an enclosure to protect it from the elements especially wind borne debris. Finally ensure the application documents a clear basis for the risk…included documentation to support the probability (or estimated recurrence interval for damage events) as well as the exposure of loss of function duration associated with each of the estimated damage events.

Common pitfalls include lack of documentation to support the probability or estimated recurrence interval for damage events. A recommended approach is estimating the recurrence interval based on probability of utility power failure over the 19-year useful life of the proposed project. Applying the formula shown along the bottom of Table 6-1 in the FEMA Coastal Construction Manual, assuming a 1-day outage has a 99% chance of occurring or being exceeded over a 19-year period, it is an estimated 5-year recurrence interval. If you say a 4-day outage has a 33% chance, that equates to a 48-year recurrence interval. You can do that for multiple events and complete your benefit costing. In addition to explaining the estimated probability or recurrence interval of a power outages, it is just as import to document the basis for estimating the loss of function impact including outage duration and economic impact per day of loss of function. Documenting the critical functions along with the basis for identifying the power capacity needed to service those critical functions is needed and often overlooked.

As mentioned in the best practices it is important to document the scope and cost estimate to implement a complete solution including a transfer switch, fuel storage, and any other equipment needed to properly install the generator. If the project includes replacing an existing generator it is important to document the existing conditions and explain how the scope provides an increase level of protection versus simply addressing deferred or future maintenance, rehabilitation, restoration, or replacement of an existing generator. Finally, with respect to residual risk, it is important to estimate potential after mitigation damages. The generator project is not fool proof and there is a limited probability it may not function over the life of the project. So you should include this residual risk in your benefit cost.

Moving on to seismic retrofits. Similar to wind retrofits, a best practice is to include a vulnerability assessment or evaluation report for the building being mitigated. In addition, stating the project will be done in accordance with ASCE 41 and identifying the level of protection desired with the scope of work. Projects done in accordance with ASCE 41 are generally considered technically feasible. Submitting design plans is another best practice and we see this across some, but not all, applications. Those that do provide the plans are likely to be considered technically feasible. Projects with preliminary plans have a high success rate.

Providing documentation to support the loss of function (for example the number of customers served by a utility). For critical facilities, documenting the nearest available alternate location is important and often overlooked. Finally, when the BCA is based on historical damages, including an analysis to support the recurrence intervals is helpful.

With respect to pitfalls, Eric pointed out using the time between events as the basis for a recurrence interval as being incorrect. The recurrence interval is based on annual probability of that magnitude event being equaled or exceeded.

Another pitfall is including the land value in the Building Replacement Value. The modeled damages for buildings are estimated based on the Building Replacement Value so, over-estimating the value with land value can overestimate damages and therefore benefits. Finally, another pitfall for seismic involves assuming joint dual probability like loss of water utility and an uncontrolled fire occurring. Make sure you take this in consideration.

Moving on to safe rooms. One of the most important items to include in a safe room project is stating the project design and construction will comply with FEMA P-361, this includes doors and openings.

It is just as important to provide a conceptual floor plan to allow reviewers to confirm planning requirements for space per person are met as well as operational requirements like emergency power and restrooms. Finally, FEMA P-361 recommends the use of the internal pressure coefficient for partially enclosed buildings be incorporated into the design. Projects that are submitted with these characteristics have a high rate of being recommended for further consideration.

Some common pitfalls with safe room projects include the use of historical damages for safe room, most projects with modeled damages are cost effective, on the other hand safe room projects BCA based on historical damage are less likely to be cost effective. They also tend to have a lot of missing documentation. Ensure you use a half mile travel distance instead of half mile radius, ultimately population should be less than 5 minutes away. Finally, not providing sufficient information for operational requirements like useable area space per person and having sufficient parking.

Moving onto dry flood proofing, I think you are noticing a trend with providing a vulnerability assessment, it is a best practice to provide one for dry floodproofing as well. You want to identify all of the points of entry for water and make sure those points of entry are being addressed in the design. The second thing you want to do is provide documentation for basis for the flood protection level or the design flood elevation. This should be consistent with ASCE 24. And then, utilize/specify tested products that meet the ASCE 25 standard.

Common pitfalls include noncompliance with ASCE 24 (for example you cannot dry floodproof structures in Coastal V Zone or floodway, nor can you dry floodproof residential buildings). Lack of sump pumps to address seepage or lack of emergency power to run those sump pumps is often an issue found. Finally, the scope only addresses doors and overlooks other penetrations such as utility through the building envelope. It is critical to have a vulnerability assessment. I encourage you to reference FEMAs Harvey and Irma MAT Recovery Advisories from 2017 regarding dry floodproofing. The team that was deployed to Houston was able to visit the Texas Medical Center and documented several lessons learned on dry floodproofing.

In summary, encourage you to provide a narrative explaining the benefit-cost analysis and describing the basis for estimating damages or documenting historical damages as well as any other assumptions and outline how documentation is organized. If you have not completed a vulnerability assessment of a building or H&H study for a watershed, consider a Project Scoping application, formerly known as Advance Assistance, to develop the technical information necessary to support the feasibility of the project. Capitalize on efficiency mechanisms, with that said make sure you meet the applicable conditions. Finally, if you’ve previously submitted a project for PDM or FMA, we recommend you review the feedback in the NTR memo and that should help identify the reasons why the project was not recommended for further consideration. This concludes today’s presentation, now we’ll start our Q&A. Thank you.

Good afternoon everybody. Now we will take questions. And we tried to leave plenty of time for questions and we encourage you to type the questions into the chat. A reminder, we focus on pretty much the technical feasibility and cost effectiveness of the projects. Some questions related to FEMA GO or things of that nature, we might not be able to answer things related to eligibility, but we recommend you following up with your state hazard education officer. We assign each question a number. You will hear us refer to that, as likely as we talk. We will do our best to get to each one, but we may not answer every single one. And we also may not answer them in order that they were received. So, I will start out with the common question we had yesterday, where's the best source of recurrence intervals for specific events. For flood hazard we recommend starting off with your FEMA flood insurance study. Also,

An H&H or hydrology and hydraulic study for the watershed. Possibly using U.S. GS or Noah Gates data, local water management District has the study that was done for the area. And in some cases, even using Atlas 14 rainfall data. They could all be potential sources to help with estimating the recurrence interval. The seismic wildfire, tornado and hurricane risk, wind risk, those are incorporated into the software. The recurrence intervals are there. On the wind side and seismic side, you can also go out to another source such as American Society of Civil Engineers, the ASCE 7, has information for basic wind speeds. Also, with respect to the hazard data, there is a pretty good resource set up by the Applied Technology Council, Alpha, tango, Charlie, a hazard map and do a search for that and it will take you to the website. Enter the address and it will give you the wind speeds, the seismic data, hazard data and also some other hazards as well at the location. Hopefully that will help you with the recurrence intervals. Again, that was a common question that came up yesterday.

The next one I will talk about came from Hillary. The question, is there a format for vulnerability assessment mentioned during the presentation? There is no standard format, but it should be in a formal report developed by a licensed design professional. There are, for example, for wind, there is FEMA publication 2062, FEMA publication 2062, that has a wind vulnerability assessment of the critical assessment, providing information on what component should be reviewed. There is a FEMA publication, along with a seismic publication, along with ASCE 41. American Society of Civil Engineers 41. That might be a helpful document for vulnerability assessment of a building that you are doing a retrofit for. Again, 262 from FEMA may help with the wind retrofit. And there is also FEMA 936, at is another publication that gets into flood retrofits for nonresidential buildings. I think all three of those are good resources and have dependencies with the checklist that might help you with what the assessment that needs to be completed.

The next one I have is, on our end, 4. That is a question from John, if a church floods annually, and is owned by a tribal member, but not by the tribe, can the tribe apply for the FMA, on behalf of the owner to mitigate against future floods? There are two key parts, number one, overall, yes. The tribe can apply. But, there is two key things to keep in mind here. Number one, the tribe has to be a participating community in the National Flood Insurance Program or otherwise the tribe is ineligible for the FMA grant. Secondly, the church has to have an active flood insurance policy. So, keep those two things in mind. And I will let Brian, if anything, expand on that momentarily. Also Ryan will talk about some questions we had come in related to FEMA GO. Ryan?

Thank you, Manny. Hello, I am Ryan, a hazard mitigation assistance branch chief at FEMA headquarters. It is nice to be with all of you. Manny, I cannot expand anymore on the church and the question about mitigating it. If you wanted to submit any project to the flood mitigation assistance program, your community needs to be in good standings for the National Flood Insurance Program. And every property that is submitted for an individual mitigation activity like acquisition, or mitigation or construction, the structures have to be insured by the national flood insurance program to be eligible. Your window for being eligible is closing very quickly. In fact, it is probably too late if you are looking to buy a flood insurance policy right now. There is a 30-day waiting period, so you are likely not going to get the flood insurance policy in place if you do not have one already. Today is the second day of September and our application period start date is September 30th.

We had a lot of questions about FEMA GO, and I am going to send you over to our BRIC web page. [Www.FEMA.gov/BRIC](http://Www.FEMA.gov/BRIC). And if you go towards the bottom of the webpage, you will see a link, for FEMA GO, or FEMA Grant Outcomes. That is the new application system, for this upcoming cycle of the building rezoned infra structure communities. As well as flood mitigation assistance. If you have questions or had issues with accessing FEMA GO, please contact the FEMA GO helpdesk. For those of you at a local community, please know that you will not be able to choose which application or which system, me correct myself one more time, which FEMA program you are going to submit to. That is done at the applicant level, when they are attaching applications. So, let me remind some of you really quick, the difference between application and sub application. The applicant submits one application, or if you will, think of the application as a train. And along the train are a number of sub applications. So, the applicant will need to submit all of the sub applications within their application, to FEMA, for review and consideration. So, those of you at a local community would be considered sub applicant and you would work with the state hazard mitigation officer, typically. In some states these programs, building resilient infrastructure and flood mitigation assistance, they may be out of two offices. Texas is a great example, within Texas you of the Texas division of emergency management that would manage the BRIC program. And then the Texas Water Development Board that will be managing the flood mitigation assistance program. Make sure that you contact the correct office, if you have any questions. I also know that many of those across the country are happy to let you know who your FMA contact is, if it is not them in the state. There is a lot of information there but going back to my main point, if you have questions about the FEMA go system, feel free to reach out to the help desk. Thank you, Manny.

Great. Thank you, Ryan. Now to a couple more questions. I will turn over two questions here to Eric, to talk about land acquisitions. And I am trying to remember, flood mitigation projects. Eric?

Thank you. Hillary asked, if land acquisitions will be considered, if there is no infrastructure on it. There is kind of two parts to this answer. Land acquisition is eligible, if it is part of the project with adjacent eligible properties. Where one or more existing structure exists and the total project remains cost-effective. The answer is pulled pretty much directly from the HMA guidance. Projects with the sole purpose of open state acquisition of unimproved land, are not eligible. The other scenario where land with no infrastructure on it could be acquired as if the project is a flood risk reduction project and that land is being acquired for the use of a detention base or something similar. Those would be the two scenarios to which open-space or undeveloped land could be acquired, if there is no infrastructure on it. The other question I wanted to touch on came from Alexis. She asked, if the flood mitigation project has completed an EIS, but a phase 2 has not gone into construction, can it be eligible even if the EIS/feasibility was completed with other federal funds? Frontloading EHP as much as possible is something we always encourage. But of course, FEMA would review the EIS to make sure it meets program needs. But, you know, getting that done ahead of time, that is fantastic. So, directly answering the question, if this does not seem like an immediate concern, you know, if the project construction has not started, and that is a major eligibility concern that is not an issue. We want to varify that groundbreaking has not occurred.

The other thing that we would want to make sure is to make sure there is no duplication of programs at another federal agency and does not have privacy of funding for that project. It is not a federally controlled piece of infrastructure. So there we encourage coordination with the state hazard mitigation officer and just finally, you know, if this is envisioned for the flood mitigation assistance program, we would want to make sure that there are policy holders, in the benefiting area of the infrastructure project. So, I will turn it back over to Manny to answer a couple more.

Okay, thanks Eric. I have a question from Randy. A lot of hazard mitigation plans on the West Coast identify seismic upgrades and/or replacement of critical infrastructure, such as water transmission pipelines and reservoirs. Where is the best place to start an application to address these issues that could ultimately result in design? I would say capitalize on the notice of interest period, which most of your states will open right now. Again, coordinate with the state hazard mitigation officer on that. Several West Coast states have previously submitted utility infrastructure mitigation projects for seismic retrofits and your state may have lessons learned and best practices associated with them.

All right, the next one is from Ian, can a new hardened emergency operations center qualify? FEMA, the H&H programs will not fund a new building. Again, they will not fund a new building, however, you can apply for hazard mitigation assistance funds for a new building, where the design and construction of the building will exceed the code requirements. Like a hospital in Southeast Florida, like Miami-Dade County, and I have to build it to a design wind speed of X, but instead I will design it to X +50 miles per hour. The difference between building it to X, to X +50, the cost difference between the two is what we would consider a code plus cost or a code plus project and that funding can go towards the new hospital. So, same thing would apply for emergency operations center. If you are building one and hardening it more than what is required for new construction, based on the project location, then the cost difference or code plus cost difference would help.

All right, the next one is number 11, it is from Jane. FEMA stated that the phased projects will be eligible under BRIC. Will phased projects be considered just as competitive as non-phased projects? And will sub applicants need to submit a BCA for phased project application? I encourage you to take a look at the technical and qualitative points. It is outlined in the NOFO, and there is also a lot of information and technical guidelines laid out on the website that Ryan mentioned earlier. Again, that is FEMA.gov/BRIC. You can find information there about the scoring but ultimately that is what will make you more competitive, getting the points outlined both on the technical and qualitative components that are outlined in the notice of funding opportunity. With respect to the second half of the question, will the sub applicants need to submit BCA for the phased project? The answer is yes, there should be a conceptual BCA submitted for that.

All right, next one I have is 12. I think this also came in from Randy. Yes, Randy. Can you speak to the types of projects, including pitfalls, of utility and infrastructure protection projects? I would say the biggest pitfall, if you would, is not necessarily improperly identifying the vulnerability. And what we mean by that, is how many people actually are being served by the utility that is being addressed. In some cases we have seen, let's say, the electrical grid or utility project that is covering, I don't know, a square mile or 1/10 of the portion of the grid, but the application assumes that the entire population is benefiting across the entire community, benefiting from the project. So, make sure that the analysis that you are doing benefits the risk and that that cost analysis with the risk you are reducing, how many people are being served. That is probably one of the bigger pitfalls that’s done when looking at utility infrastructure projects. And then similar to building retrofit and making sure you do the vulnerability assessment of the infrastructure, or I would say talking about, reinforcing the distribution lines, the polls that handle the distribution lines across a community. But we let the substation or powerplant, it is sitting two feet below the BFE. We wanted to make sure that the entire analysis is done of the infrastructure and we are properly addressing the hazards, so that a future natural hazard event would occur in the community, then the retrofit would be effective and continue to provide the service. All right, those are the ones that I had lined up for this window. I will turn it back over to Eric to cover a few more questions. Eric?

Thanks, Manny. So, Andrew asked, does the H&H data required for the pre-and post-project conditions need to be a full model? Would calculation suffice? And if it does need to be a full model, where can we find those requirements? So, H&H calculations can suffice, as far as the full extent of the project is covered. The results should sufficiently describe the issues, in the pre-project condition. As well as how those conditions will be resolved in the post project conditions. For example, if you are doing the flood control project, doing the calculation at one cross-section might not fully explain how the full project functions. But you do not necessarily need to do a full model calculation. That can be sufficient. I will handle a couple more, while I have the microphone. Santos asked, I think this is about the first couple of slides, were all the projects potential FMA projects or both FMA and BRIC? So, the projects that we captured, throughout the presentation, as well through the first couple slides, are applications we saw with the previous cycle. You know, PDM and FMA. They represent the project types we see the most of. It certainly is not the full universe of eligible project types under FMA and BRIC. But the ones we seem to see the most questions and wanted to provide clarity on.

Melinda asked, would structural improvements to a levee be a qualifying project? Just reaching into the guidance, you know, if the modifications are for the purpose of increasing risk reduction of the existing structure, then yes. However, they cannot constitute only repairs. If the levee is just in need of repairs and it is not going to increase level of protection, that would not be an eligible project. But if there is a risk reduction benefit to doing that, then the structural improvements could be a qualifying project. And Tom asked if the grant can be used to mitigate culinary water systems that are prone to earthquake damage. Culinary water, assuming we are talking potable water system, then a grant could be provided for seismic resiliency. In the past we have seen projects that install pipelines and structural retrofits of potable water tanks. And again, it would need to provide an increased level of protection, compared to what is currently there.

All right. Eric, I will transfer it over, transition over, Ryan has got a couple questions he is prepared to address. Ryan?

Thank you, Eric and Manny. A quick note to everybody out there, if you are from a local community, do not forget to reach out to your state hazard mitigation officer. If you are a state hazard mitigation officer, feel free to reach out to your FEMA office. And for tribal entities, feel free to reach out to your regional tribal liaison or your hazard mitigation assistance contacts in the regional offices, and they will be able to give you some more detailed information on a whole lot of HMA related stuff. Also, the HMA helpline is located on the BRIC webpage. And that may also be a resource for some of you. I will start with number 29. Does the applicant submit all subapplications in the application, and are they ranked? Peggy, thank you for your question. The applicant does submit all sub applications in one application. So, it will be important for all local communities that might be working with the state, to make sure that you are in lockstep with your state hazard mitigation officer. Also, for tribes, making sure that you develop the project or planning sub application, and attaching that sub application to your application before you send it to FEMA. We often see irregularities when it comes down to sub applications and exactly what is a sub application versus an application. So, make sure to keep in mind, hoping this is a good analogy. Keep in mind that the train is the application and needs to have a locomotive on it and a bunch of train cars on it. And then thinking of a project sub application, a planning sub application, a management cost application being submitted in the application itself. And also, the application, the sub applications are all ranked, by typically by the state. If you are from a tribe, you will want to rank the sub applications yourself. If there are multiple tribal agencies applying in the one application, then the tribal entity that is submitting it, would need to go in the system and rank it, rank each sub application. Peggy, thank you very much for your question.

The next is number 27. With the BRIC, from Carolina, hello Carolina. With the BRIC grant, would it accept conceptual designs? 10% design, for funding consideration? The question almost looks like a project scoping activity. If it is a project scoping activity, that would be considered part of the state set aside, or part of the tribal set-aside. You will want to contact the state if you're from a local community and make sure that the tribal set-aside, which is only $600,000, can accommodate the project scoping activity. I like the idea where you are coming from. Just get in touch, from the local community, in touch with the state hazard mitigation officer to find out more information.

I will move to 23 now, Eric and Manny. That is from Melinda. Would elevating a building or structure in a floodplain be a qualifying project? Good question. So, there are two different programs we are talking about here. The Building Resilient Infrastructure and Communities Program and the Flooding Mitigation program. If the building is a severe repetitive loss or repetitive loss structure insured under the National Flood Insurance Program, it would be highly competitive under the flood mitigation assistance program. You will want to talk to, if you're from the local government, you will want to talk to the state entity and find out a little bit more about what they are accepting as far as applications go. If it is going to be submitted to the building resilient infrastructure and communities program, you will want to follow all the qualitative and technical criteria available in the program support materials, on the BRIC webpage. That will make the project more competitive for you.

Then I will go to number 22, guys. Number 22, from Rebecca. This is a tricky one, Rebecca. Can a public university apply to BRIC, as a sub applicant? And, is a standalone Hazard Mitigation Plan required, or can active participation in the county hazard mitigation project meet eligibility requirements? Rebecca, if you are from a public university in a state, I highly recommend that you contact your hazard mitigation officer, as I keep recommending. Typically, a public university is an eligible sub applicant. You would likely develop a sub application and send it to the state for review and submission to FEMA. The next part of your question was, is the standalone hazard mitigation plan required? I have seen it two ways Rebecca. If you are already part of the county hazard mitigation plan, that is great. If you participate in the mitigation planning requirement and your project aligns or is consistent with the local mitigation plan, I think you have met the mitigation planning requirement. In some situations, a public university might have been participating in a state hazard mitigation plan requirement, which may also check the box. Again, I do not want to be the end all be all because you may have something more nuanced to your question so please reach out to your state hazard mitigation officer. And with that I will turn it back to Eric and Manny.

Eric I am going to try 25 and 26, to start. So the question from Melinda, would a failing drainage structure like a culvert be an eligible project? The answer is yes, but keep in mind, from the HMA guidance, modifications must be for the purpose of increased risk reduction capabilities of the existing structure and cannot constitute a repair. We are looking for the culvert, it cannot just be repaired but also providing additional capacity. So, you reduce the flood risk in the area. Also keep in mind the localized flood risk reduction projects must duplicate the flood prevention activities of other federal agencies. And also, the project must be a standalone. It has to be effective to increase the capacity of the culvert, it has to be a standalone project that would function in providing the flood risk reduction and not have to be part of, not rely on other future phases to be effective. Also, it can be a component of a larger solution. Hopefully that answers your question, Melinda.

Then I will take 26, which is from Crystal. For wildfire mitigation projects, should the BCA include only damage cost on building and structure value or can it include land value as well? For this question Crystal, I would refer you to the BCA tool, the help menu in the BCA tool. I will read some things that come from there, benefits include a void of damage, loss of function and displacement, in the case of wildfire mitigation projects, these include avoiding physical damages to structure, like you mentioned. Contents and infrastructure, potentially avoiding displacement cost is a cost required to move and stay in a temporary location while repairs are being done. Avoid the losses to timber, to be sold within the proposed project area. And avoid a loss of public services, such as facilities that are on public properties. So again, I encourage you to go to the help menu and the BCA tool for the latest version of that. There is a circle with an icon and that will help you get to the help menus, throughout the software.

Eric I will see if you are ready to take one on and then I will look for more to answer. Is a BCA required if the energy resilience project is just for a generator for critical infrastructure? The short answer is yes. Cost-effectiveness always needs to be documented whether it is through the full benefit cost analysis or using one of the efficiency mechanisms available for acquisition, elevation, or wind retrofit projects. And while we are talking about BCA, this year’s version 6.0 is the version that is accepted. I think that if you submitted the application last year, you could use 5.3 or 6.0, now we are just working in 6.0. And actually up on the screen right now, if you have more specific BCA questions, there is a link and phone number for the BCA helpline. Also, there is a number of resources available if you were to search in your search engine, FEMA and BCA, you will find not only the tool for download, but also the reference guide, supplement to the reference guide, and some other useful materials around cost-effectiveness.

There was another question and I am trying to scroll and find the number and to give credit to the person who asked it. But there was a question about if a project was not selected and if there was feedback available. And speaking for the technical review team, every project that is eligible gets a review memo, and so for this cycle, hopefully they have made it back to folks. So if your project was not selected and you are interested in the technical feedback, the memos should be available. If they are not I recommend reaching out to your SHMO or if you're an applicant, reach out to your region. Manny, do you have one you wanted to touch on?

Give me one second here. Let me coordinate with Ryan. Okay. So that folks can give us one second, we will continue answering these.

I will cover 35. Ryan and I know you have a couple, you want to cover, I will do 35 and then turn it to you. Okay, I am covering a question about is a BCA required if the energy resilience project is just for the generator project for a critical infrastructure. Yes, it is required for pretty much every single project, unless you are applying the precalculated benefits, for something like acquisition or elevation. But yes, you are required to do a BCA for a generator for a critical facility. And with that, I will turn it over to Ryan to cover the couple he has got in line. Then I will come back on after that. Ryan?

Thank you, Manny. We will start with number 28, not that the numbering matters to you guys on the line at all. A question from Steve. It's a really good question about the hazard mitigation planning process, and how COVID-19 may be changing things up on how the number of people in meetings, let me read the question. For hazard mitigation planning BRIC subgrant, how is COVID-19 changing how communities are handling the sometimes large, 50+ people, multijurisdictional technical committee meetings required to follow the six required planning steps? Steve, really good question. I don't believe that the planning requirements or the local hazard mitigation planning guide dictates how the meetings occur. I would highly encourage a virtual platform, something like Zoom, that has been working really well in my community. And especially as the local school district over here, I live in the city of Alexandria. The way they kept us informed and a lot of stuff, looking at the virtual setting may work for those meetings. You know your community much better than I do. I don't want to say that it has to be one way or the other. But look for the virtual option or other creative options too. Good question. Thank you, Steve.

Number 18 is the next one. And, Alan, you asked the question, asking about the FMA pre-app. The questions is, what information is required for the FMA pre-app, for flood proofing, raising a repetitive loss property? Thank you for your question. I would say first off, the pre-app to me sounds like a pre-application to the state. As they are determining what projects they want to have submitted by a local jurisdictions, before the the deadline of the application period. So, contact the state and see exactly what they are looking for, as far as the pre-app. Sometimes it is a short narrative of what the project will be and sometimes it is a multipage pre-application. So, contact the state and see what they have to say. And then, if it is a repetitive loss property that meets the FMA definition of repetitive loss, we look forward to seeing it. Thanks a lot, Alan.

Now question number 16, Sydney asks, do applications for local hazard mitigation plans update or differ in any capacity? Good question, Sydney. Just for your reference though, all mitigation planning activities must be submitted against a set-aside. Either the state set-aside of $600,000, or tribal set-aside. And there are certain cost limits, within some of those activities. So, for instance, within the state set-aside, not more than half of the set aside can be used for hazard mitigation planning activities so please contact the state and see what they have to say as far as the mitigation plan. Either a new mitigation plan or an update will be considered for them. And then move from there. So, Sydney, thank you very much. And one last thing, it will still, the application itself will still be processed through the FEMA GO system. You will probably need to down click on the activity that says it is an update, or a new plan. Thank you very much for the question. Back to you, Eric and Manny.

Thank you, Ryan. I will take three questions here, for the folks tracking what we are doing, I will take question 37. Would widening of a hurricane evacuation roadway underpass to increase the flow of water in a watershed qualify? The answer is yes, as long as the flood benefits can be clearly demonstrated and documented. Meaning we want to show there is some level of flood risk reduction by increasing the flow of water in the watershed that we are reducing damage upstream of the underpass and the benefits are sufficient enough to show it is cost effective. In addition, we want to make sure that from a technical feasibility standpoint, that we know what capacity it is providing. What level of service are we providing? That it meets all the local water district requirements and we address things such as upstream and downstream impacts. But yes, definitely highway underpass to increase elevating the roadway or increase in the capacity under a roadway for improved drainage in a watershed. That does qualify, Peggy.

And then there is a question here, 36, from Frank. Can the program be used to mitigate frequent flooding of a sewer pump station, and are environmental benefits considered during selection of projects? I think this is also asking which program would apply. I think that this predominantly would apply under, well what used to be PDM, now BRIC. And then potentially under FMA. Under the FMA side, the NOFO gets very detailed with the benefiting area and how many NFIP policy structures are within the benefiting area. So just keep that in mind. But this should qualify under the BRIC program. And you know, things that can be done to protect this pump station, the wet or dry flood proofing measures, meaning we are elevating the equipment, so that the pump station continues to function. And dry flood proofing to keep water from reaching those pumps. The environmental benefits can be considered. Just keep in mind that the benefit cost ratio without those environmental benefits must be at least 8.75, and there is more guidance in the FEMA BCA tool on the qualifications, and when environmental benefits apply to the project. And the next one I have is number 34. This is from Cindy. This gets into, since seismic activity is not particularly easy to predict, would it be prudent to submit an application for seismic upgrades to a water utility, by providing a new reservoir? The new reservoirs can be provided if they are more cost-effective than performing a structural retrofit of the existing water system. The existing reservoirs, or whatever it may be. Again, you have to provide coverage to the area with the distribution that could be isolated in our water line break. And like everything else the project will need to demonstrate cost effectiveness as well as the technical feasibility requirements. Keep in mind, when we are talking about new infrastructure, that demonstrating cost effectiveness tends to be challenging. That is why often cases we do retrofits, but yes, if you can show that it is more cost effectiveness, to do a new reservoir, versus retrofitting the existing part of the system, that could potentially be a proposed alternative. All right. I think those were the three I was planning on covering right now in this window. And I think Eric may have heard, you may be ready, so I will turn it to you to figure out what is next for me. Eric?

Thank you. Perfect. Carolina, you have the clarification question, your project is at the 10% conceptual design, and looking to apply for construction and finalize the designing. And the question was, are you eligible? The short answer is yes. We often see projects that do include additional engineering, and design cost, as part of the project. Just a couple things, particularly at the 10% design, we want to make sure that the level of design that you have, you know, clearly shows the proposed improvements, and that the information provided in the 10% design is enough to support the cost effectiveness. You need to understand if it is a flood protection measure, you know, the pre-and post-mitigation water surfaces or elevation of that measure, so as long as it shows enough information to document the cost effectiveness. There would not be any major concerns there. The other thing that we often look for when projects are clearly in the conceptual 10% design phase, is making sure that the additional engineering costs, which are part of the scope, also part of the budget. So, if those things are all there, there are no immediate eligibility concerns with the project in the conceptual design phase and looking for additional funding to move into the final design. I think Manny might have one or two more quick ones.

I think I have the last one that we will take coming in, question 40, from Helen. The question is, we are working on a relocation project, to move a home out of the 1% annual chance flood area. Or special flood hazard area. Do you have any specific tips for this type of project? And, I would say, start off with getting prepared to do a benefit cost analysis. In particular, what you will need for that is maybe the elevation of the house, compared to the elevations in the flood insurance studies. So you know this is a 1% annual chance, it is in the special flood hazard area. There is a BFE identified there but the flood insurance study will also identify other elevations for another occurrence intervals, such as the 10 year flood, 10 year and 50 year. We want to compare the elevation against those. If you don't have all that information, maybe you are in a A zone, you don't have the elevation BFE or the flood insurance study doesn’t help you with identifying the recurrence interval for other floods, then you may want to look into the historical flood damages that occurred at this house. You would do the first approach with the elevation certificate and flood insurance, that study we called the modeled damage benefit cost analysis. The second would be the potential to be the historical, where you are looking at, again, historical damage that occurred at that location. As long as you have three historical flood events at that location, or more than a 10 year period of time, then you can potentially use what is called the unknown frequency calculator for that, or estimate the recurrence intervals for each of the historic events. Another approach is the estimated damages approach. This would be that you know you had, let's say a few years ago, you had one foot of flooding and a few years before that you had three years of flooding. And however long ago you had different depths of flooding historically. But you don't have those claims. You can then use the depth of flooding to help estimate what the damages were, because again you did not have the flood insurance claim. Those are all different approaches to looking at the cost effectiveness of relocating the property. One final approach may be to consider the precalculated benefit. Maybe you are looking at just doing the acquisition versus relocating. That might be an alternative to consider if the BCA is challenging or not showing cost-effective with the three approaches that I outlined initially. Helen, I hope that helps address the question. Or at least gives you the preliminary roadmap on where to navigate where to go next.

All right. I think that puts us pretty much at our time limit here, at almost, at 3:29. I will ask Alix to open up the survey here. We appreciate any feedback that you will have on this. We had to do this yesterday, and we definitely incorporated some lessons learned. Hopefully the Q&A went a little smoother and we got through just about 40 questions in about 40 minutes. We averaged about one question a minute. Hopefully we were able to answer your questions and, more importantly, with the presentation we were able to take away best practices and pitfalls for common project types. We look forward to seeing your applications, and we wish you the best of luck in this process. And with that I will wrap it up unless anybody else on the line has something to add. Thank you, have a nice day.

[ Event concluded]