

Nonstructural – Opportunities and Issues
Planning Community of Practice Webinar
March 17, 2016

Presented by Jeremy La Dart, Economist,
Office of Water Project Review
and Maria Wegner, Senior Policy Advisor
Moderated by Jodi Creswell and Camie
Knollenberg

Editors' Note: The webinar recording did not start right at the beginning of Mr. LaDart's presentation. The introduction included an overview of the vetting and conditions that led to the signing of PB 2016-01, Nonstructural Policy Clarification.

Nonstructural Policy Clarification (PB 2016-01)

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3/17/2016



Jeremy LaDart: I'm not going to read this, but this is kind of the overview of the webinar as we'll go through today. I'll try to talk a little bit about the layout and the bulletin and then we'll get into some of the things that were probably the most, I don't want to say contentious, but seemed to be deviating from the practice, even though again, I started out the meeting by saying that we're clarifying policy here, not changing policy.

So the planning bulletin at a glance, kind of standard format, references, definitions specifically are one of the things we're going to get into that you'll probably think are a little different than what happened in the past. We tried to lay out the special considerations of the planning bulletin to go along with the six step process of formulation and evaluation. And then this is probably one of the biggest ones that has heartburn for folks right now and that's how we deal with acquisitions, relocations, and permanent relocations.

So I've had a number of people contact me since the planning bulletin was signed in December. It is on the

Webinar Overview

- Planning Bulletin Layout
- Applicability of Planning Bulletin
- History of Nonstructural
- Definition of Nonstructural
- Formulation and Evaluation
- USACE National Nonstructural Flood Proofing Committee (NSFPC)



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Planning Bulletin at a Glance

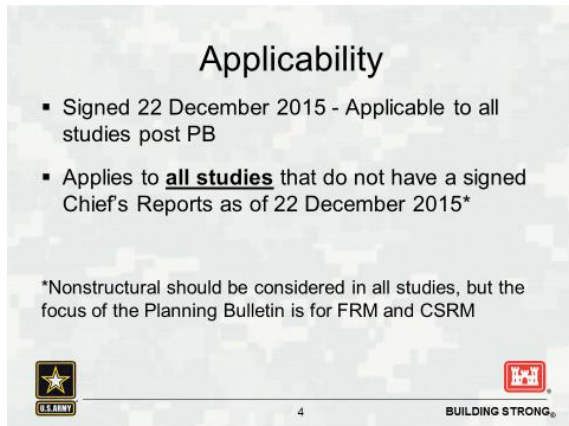
- References
- Definitions
- Purpose
- Special Considerations
- Acquisitions/relocations/permanent evacuation



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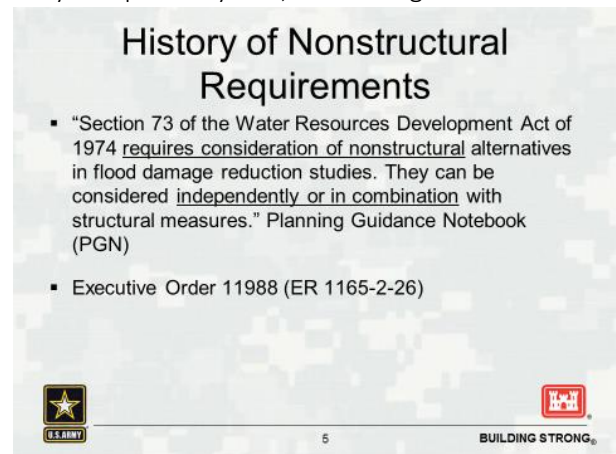


website and you can find it in the planning toolbox. This applies to any kind of study that does not have a Chief's Report as of the date of the planning bulletin.

And to be honest, we've been implementing this Planning Bulletin with every recommended study for at least a year or a year and a half so this really is not as new as it may seem to folks that are actually doing non-structural on a day-to-day basis.

So just as an applicability, this is for any study – there are no exceptions. I would like to highlight on the bottom that nonstructural should be included in every study that the Corps of Engineers does, however this Planning Bulletin was really written with the key focus of flood risk management and coastal storm risk management. Navigation has its own set of nonstructural measures, as does ecosystem restoration. And you'll probably find, when we get into the definitions, that they don't quite line up with what we're going to talk about today.

So here's a brief history of nonstructural, very big, from the 70s. There you can see some language from the Planning Guidance Notebook going back to the WRDA of 1974 which requires us to consider nonstructural alternatives. They can be independent or they can be in combination. Again, in the 70s, 1977, Jimmy Carter, signed Executive Order 11988. The reference is ER 1165-2-26 for our policy.



I was debating, when I did this, about making this interactive and was going to do a poll for how many of us were actually born in 1977 when Jimmy Carter signed this. But if you want to do this amongst yourselves right now, we can have a little fun with this.

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So here in the PB, we've gotten to the definition of nonstructural. This was very debated and very deliberative in how we've worded this. And this might seem like a little bit of a departure from some of the locations, particularly Appendix E, when it defines nonstructural. We've historically really looked at it from an engineering perspective. If we didn't significantly alter the water, we were going to consider that nonstructural. This definition really brings us into the current state of the science and the practice and gets us more in line with FEMA and other federal agencies. Nonstructural measures reduce human exposure and vulnerability to a flood hazard without altering the nature or extent of that hazard.

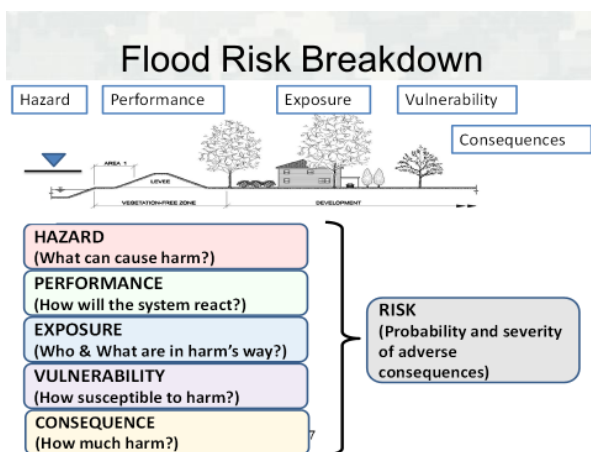
Definition of Nonstructural

PB 2016-01 Paragraph 2. Definitions. The following definitions are intended to help further clarify the existing definition of nonstructural in the Planning Guidance Notebook (reference 1 a):

- a) Nonstructural measures reduce human exposure or vulnerability to a flood hazard without altering the nature or extent of that hazard.
- b) Hazard, in this case, refers to water associated with flooding in a coastal or riverine setting that can cause harm.
- c) Exposure is defined as who or what would be impacted by a hazard.
- d) Vulnerability is how susceptible exposed people and properties are to damage or harm from the hazard.

Logos for U.S. Army and BUILDING STRONG are visible at the bottom of the slide.

We further define Hazard, you know that's the water, and the water associated with flooding. Exposure tends to deal with who or what is affected by the water or the hazard. And Vulnerability is how susceptible the exposed people or property are to the harm from the Hazard. So, again, it may seem a little different from a couple of places in the Planning Guidance Notebook. And we are looking at releasing a new version of the Planning Guidance Notebook that will align with this definition. But, if you read it and think about it, it is not that different of a departure from the original intent. We're not really going out to make the water do what we want, we're going out to see what is the water impact and how do we go about addressing and minimizing or managing those risks.



Some people are very visual and spatial and try to look at these things rather than just the definitions. So here's a spatial representation of what we're talking about. You've got the hazard, that's the water. You've got some measure that we would do structurally that's really performance. So when we talk about nonstructural, we're really talking about the exposure piece. Who and what are in harm's way, the vulnerability again, how susceptible they are to that harm, and then, how much harm? What are the consequences of that? The vulnerability and the



consequences are what the Planning Bulletin tries to highlight and define as nonstructural.

So further along in the planning bulletin there is another definition and statement. I told you I'd highlight some of those areas that probably seem the most foreign or conflicting with how we've done business in the past. And this is one of them. This is not just from Mr. Brown, but it came up at several Civil Works Review Boards, from leadership here at the organization and at ASA. Permanent berms and floodwalls, and other similar flood risk reduction structures, are not going to be considered nonstructural anymore. And this definition, you'll notice, is not based on size of the actual measure itself, or to what extent it actually impacts flooding as we've done it in the past. This is: permanent berms or flood walls, or other similar measures, are not going to be considered nonstructural. Again, this is consistent with existing policy.

Definition of Nonstructural (cont.)

PB 2016-01 Paragraph 5. a) Berms and Floodwalls. Berms, floodwalls, and other similar flood risk reduction structures impact the hazard, and thus do not meet the USAGE definition for nonstructural measures. From this point forward, berms, floodwalls, and other similar structures must be implemented as structural measures and cost shared as such.

- This is an absolute definition and is **not based** on size or how the measure influences the hazard (extent of flooding).
- Consistent with ER 1105-2-100, Chapter 3
 - ▶ "Damage reduction from nonstructural measures is accomplished by changing the use made of the floodplains, or by accommodating existing uses to the flood hazard."





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Before we move on, I would like to highlight that just because we're saying it's not policy compliant for USACE to implement it as nonstructural, does not mean it can't be looked at under a structural context or as an action by others. So, I'd really like a takeaway from this webinar to be: it doesn't mean you can't look at flood walls and berms, etc. anymore. We're just taking a stand and saying that for nonstructural purposes, these are not going to be considered what we can cost share in. And cost share for nonstructural, by the way if you're not familiar, for flood risk management, there is a different nonstructural cost share than there is for a structural flood risk management component. So there is a cost share and then there is an agency stance and how we communicate.

Special Considerations: Nonstructural Formulation

- Not an afterthought; part of formulation from Day One
- Consider all nonstructural measures regardless of who can implement
- Minimum of one nonstructural plan should be considered (EO 11988/ER 1105-2-100 Exhibit G-1)
- Alternative use of land should be considered



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Okay - getting down to the some of the special considerations. Again, we tried to lay this out with a formulation, evaluation and plan selection in mind. So this is kind of a no-brainer, but we always like to highlight it. Nonstructural should not be an afterthought. It should be part of your formulation strategy from day one.

Another thing I like to say with this Bulletin is, is you shouldn't just look at what is the cost to buy out the whole town. The levee is going to protect the whole

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town; so how much is it going to cost to buy it out? Well, nonstructural is not cost effective. Of course, it's not going to be, if you look at it that way.

Try to formulate plans. Again, actions that either the Corps can do or that others can do and really look at it from a comprehensive manner, whether it be total or incremental, to be able to say that we really consider nonstructural as we're supposed to.

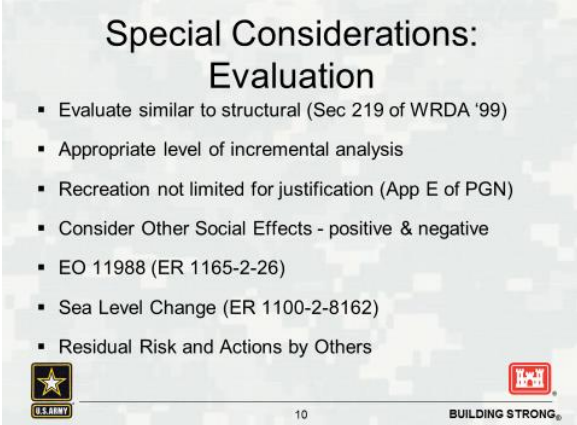
Again, consider all nonstructural measures, even those that we can't implement. If it's someone else's job or responsibility to implement it, that should be included in the plan as part of a greater, bigger master plan for the area.

We do have policy that requires us, as we've mentioned already, to consider at least one nonstructural plan. There are many of us that feel that we should carry a nonstructural plan all the way through to the final array of alternatives. There is not exactly a very hard line on that, but consideration for nonstructural there from the EO 11988 perspective, and if you look at Appendix G of the Planning Guidance Notebook, we should be giving full consideration to the formulation of nonstructural measures and plans.

One thing that comes up a lot, and this is in both formulation and evaluation, is the alternative use of land. We should really consider that. It's a very powerful thing that USACE has the ability to do, whether it be recreation, whether it be ecosystem restoration opportunities, or restoring the flood way.



Alternative use of land is a very big component to this. So when you're laying out your formulation strategy, it's not only a matter of formulating just to reduce damages, it's also what are we going to do after we've dealt with that, particularly when we're evacuating, buying out the flood plain. So make sure you look at that.

Next we have evaluation. Evaluation has a number of components with respect to nonstructural. From an economics perspective, Section 219 of WRDA '99 actually directs us to evaluate non-structural as similar nature to structural. There is about a four-page implementation guidance that you can read. But it's very good. And we should be actually calculating the damages reduced of these properties so that we can look at nonstructural and structural on a fairly even keel.



**Special Considerations:
Evaluation**

- Evaluate similar to structural (Sec 219 of WRDA '99)
- Appropriate level of incremental analysis
- Recreation not limited for justification (App E of PGN)
- Consider Other Social Effects - positive & negative
- EO 11988 (ER 1165-2-26)
- Sea Level Change (ER 1100-2-8162)
- Residual Risk and Actions by Others

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I would love to tell you that the nonstructural planning bulletin answers this question about the appropriate level of incremental analysis, but I'm going to flat out tell you that it doesn't. "How much incremental analysis is enough?" is still a difficult question. When you get down to some of these

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nonstructural measures, you can literally look at this on the individual house basis or you can look at it by census block, by neighborhood, or by the 10-, 25-, 50-year flood plain. I've seen numerous different ways. Again, I would love to tell you that I have the exact answer to this, but I don't. Right now we're looking at it on a case-by-case basis. If you need some help with that, contact your chain through the economics branch and we can work through it on how much was appropriate for your area.

I always like to highlight this one – Recreation is not limited for justification. It's a very little used one, because we don't do a lot of alternative use of land anymore; I wish we did. But recreation for nonstructural is not limited for justification. And what that means is, is recreation can be used even over 50% of the benefits to get your project to a 1.0. So if you have a neighborhood that's like basically got a BCR of 0.4 or 0.45, you can actually justify that whole project based on recreation. We can't do that in any other of our mission areas, even coastal shoreline. It's limited. So I would highly recommend if you haven't done so to look at Appendix E and the language on that, because it's a very powerful piece of policy.

As with any other one, this one should be a clear statement. But we need to consider other social effects, both positive and negative. I've really seen a lot of these as well, "We can't do nonstructural because if we buy it out, the community cohesion is going to go away." And we really only focus on the negative. But there could potentially be positives as well. We do have a couple of good examples. But when you're looking at the evaluation of these across all four accounts, really consider the positive and negative aspects of nonstructural and don't try to be quick in writing that off.

Executive order 11988. Again, there is the ER. There is an eight-step process that we have to follow any time that we're doing any action within a flood plain. It actually, if you read it, coincides very well with nonstructural. So that one isn't just for nonstructural. We have to do it for everything. But I highly recommend looking at the eight steps that need to be documented.

This is coming up more and more, sea level change with respect to nonstructural. I can complement the Southwest Coastal team in Louisiana that is about to have Civil Works Review Board coming up this month. They are looking at 2500 to 3000 structures that they're going to elevate in place.

And there was a real question - are we going to elevate these structures to the "current hundred year?" What about sea level rise? Because I've raised this house 10 feet but in the future, in hundred years, high sea level rise is going to add 3 to 6 feet to that. It's not like once you raise a house and go lift somebody's house on piles that it's really - it's not 100% permanent, but I wouldn't say it's very adaptable.

So sea level change is becoming more and more prevalent in the formulation of nonstructural measures, particularly on coastal areas. I think New York District is doing very well with that on Sandy and I've seen several on Fire Island and Montauk Point. And we had a TSP yesterday on Shrewsbury, New Jersey. So I think they're doing very well.

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And then, of course, as with everything flood risk management, residual risk is a big component. We shouldn't discount actions by others. Even if you have a very large structural plan, there are always low-hanging fruit nonstructural alternatives that others could do from preparedness to flood plain management to land use to warning systems, et cetera. So there are a lot of tools in the nonstructural tool bag that can be used by others. Even if you're going to do a structural project, don't discount those.

So here is probably, I would say, the single biggest thing that I've experienced consternation with, with respect to this Planning Bulletin. We are no longer going to do voluntary - 100% voluntary buyouts of any kind. And you know, that's acquisition, relocation, removal, et cetera.

**Special Considerations:
Eminent Domain**

- USACE participation **requires** Eminent Domain for all forms of buyout*
 - ▶ Ensures completeness of the recommendation
 - ▶ Allows for relocation assistance (91-646)
 - ▶ Allows for alternative use of land
 - ▶ Addresses residual risk considerations
- HQ can provide examples for Letters of Intent

* Eminent domain is not required for flood proofing or elevation of structures

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This came up on several studies. It has been worked all the way up to the ASA's office. USACE's participation is going to require that the sponsor at least retain eminent domain for implementation of buyouts.

And why are we doing that? Well, for one thing it's helping us ensure completeness of our recommendation. If you say you have a buyout plan for 100 structures but you only have a participation rate of 40%, do we really have the plan, a complete

plan that we've told Congress that we were going to implement?

Another one is, is that in order to apply 91-646 benefits, those are the Uniform Relocation Assistance Act, we have to go to a homeowner with the threat of eminent domain. They call it the "threat of." I have to knock on your door and I have to say, "You are part of a large project that the local sponsor and the Corps are going to be doing. We would really like for you to sell to us. But if we have to, we do have authority and willingness to use eminent domain."

And that's a very important point. And that doesn't just come from us. The U.S. Department of Transportation is the lead agency when it comes to applying Public Law 91-646. So that was a really big sticking point with the Assistant Secretary's office that, yes, we do really need to have a serious sponsor that's going to be willing to retain eminent domain.

And I don't say this from a black box. I've been in there. I've been in the room. I know what we're saying to a sponsor politically by saying, hey, in order to do this project with us, you're going to have to commit to buying out your constituencies and constituents and doing something that may not be popular. Again, we just feel that it is appropriate for our participation.

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Another one that allows for that alternative use of land, I really want to hit that one hard. If you have a neighborhood, an area, a large block of land that you know you're going to buy out, you have a sponsor that's willing to do eminent domain, we have a lot of ability to do something with that and turn it back and be good stewards. So that's a real big piece of applying that.

And then the last one. It really addresses residual risk comprehensively. What do you do if you have a voluntary buyout and there is a cul-de-sac and four of the five owners are voluntarily bought, they'll sell to you, but the fifth one is just going to be a holdout? Do you allow him or her to sit there and to continue to get damaged? Do you still require the local services of the road and utilities to be going to that person?

We've worked through this a lot. I know that a lot of people have a real tough time with this one, particularly with their locals. But we really - as an agency, we're saying this needs to be done.

If you do want to have some language examples provided to you for your sponsors, we have letters of intent that we can share that we've worked with the appropriate chain here with counsel and et cetera to give you the language that we'll need them to commit to this.

I would like to highlight that eminent domain, when we're talking about this, is from buyouts. I've had some questions that it wasn't clear in the PB. It seemed to be. But flood proofing and elevation of structures, those are still going to be voluntary. We can't actually go out and force someone to raise their home up. But we can go out and say it's in the best interests of the public for you not to be in this harm's way anymore.

So I was going to wait until the end to answer questions, but I do see that while we're on this slide, the New York District asked: Would the requirements to use eminent domain or nonstructural plans voluntary or not? For flood proofing and elevation, they are voluntary. And we'll have to address what we would consider participation rate to address the completeness and et cetera.

If you're going to do any kind of a buyout of anyone, the sponsor has to retain eminent domain. So for a buyout, we are not doing 100% voluntary buyouts anymore. We're not going to participate in them. The sponsor can do that if they wish. But for USACE's participation, that's our line.

USACE National Nonstructural Flood Proofing Committee (NFPC)

NFPC Members and Advisors

- Randall Behm, Chair, Omaha
- Kim Gavigan, Secretary, Los Angeles
- Steve O'Leary, Huntington
- Keven Lovetro, New Orleans (MVD)
- Lea Adams, Davis (IWR)
- Mary Weidel, Detroit
- Bob Finch, Hawaii
- Brian Rast, Kansas City

Technical Resources

- Nonstructural Techniques
- Publications
- Assessment Tools
- National Flood Barrier Testing & Certification Program

Google: NFPC

web site: <http://www.usace.army.mil/Missions/CivilWorks/ProjectPlanning/nfpc.aspx>

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That was the gist of the bulletin, a little bit longer than I thought. I did want to give a very large shout out to the National Nonstructural Flood Proofing Committee. The committee was formed in 1985 to help promote nonstructural measures throughout the Corps. They are chartered by the Chief of Planning and Policy. You can see here the chair is Mr. Randy Behm in Omaha. There are currently eight advisors and members on the committee, a very diverse group, as you can see.

They also reach out to other subject matter experts nationwide as needed. They offer a number of technical resources and publications on their Website.



NFPC Resource Opportunities

Training – comprehensive and informative fundamentals of nonstructural mitigation

- PROSPECT Course #345 Nonstructural Flood Risk Management
- Workshops
- Webinars

Study Support - SOW assistance, field investigations, structure assessment, plan formulation

Review - study progress, draft report, agency technical review

Contact the NFPC by email: dli-cenwo-nfpc@usace.army.mil



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The committee has a lot of training that they do. They actually have a PROSPECT course for formal training. They do workshops and webinars. They actually can work with you to come directly to your district or area and talk to you and your sponsors and the local resource agencies about the potential for nonstructural and how well it can be used.

They offer study support at multiple levels including review, which I think is going to be a big piece in the future

that we're going to require nonstructural on almost every agency technical review. That's not an absolutely right now, but I think we're really going to start pushing our ATR teams on these studies to have a heavy footprint of the nonstructural group.

With that, I am actually finished with the formal portion of the presentation.

Camie Knollenberg: All right. Yes. We had questions and I will pick those up. One question was: Please define berm. It says in the past, berms have been defined as non-engineered levies.

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Jeremy: Yes. In the past that was the case because, again, it was a function at looking at the definition as if we weren't going to significantly alter the water and where it wanted to go. And you can't see me, but I'm using quotes right now. All I can say is, is that the Planning Bulletin clearly states that no permanent berms flood walls and other similar structures are going to be considered nonstructural.

And that's not about whether it's considered an engineered levee or not. It's not about considered whether it's actually impacts where the water is going to go. I will highlight that there are a few potential measures that can be looked at. I looked at one yesterday. I thought it was very good from Shrewsbury. It was called a deployable flood wall. It was not permanent. It was basically the equivalent of sandbags, but it had a better use and it was much quicker to be to be implemented by the locals.

Those are not really what we're talking about here, because those are measures that on any given day can be taken down or put up. We're talking about going out and actually building some sort of a berm, flood wall, et cetera, around a structure or a number of structures. And those are not going to be considered nonstructural.

Camie: Another question similar: Is a ring wall around one commercial structure considered nonstructural?

Jeremy: Again, no. It's not about size. It's not about how much water is moved. It's not about how many people it actually impacts. It's about a clear agency position that these structures are not going to be considered nonstructural anymore.

Camie: All right. There was a question about sea level change and Southwest Coastal. And the question is: What did the PDT decide to recommend? Did they raise the home to an elevation based on the historic rate of sea level rise or on the high scenario?

Jeremy: So I'm currently reviewing this one right now. And I can't actually recall specifically which one. I believe they looked at the whole range. And we asked them to not just look at it from an economic basis but from a whole risk. Someone from New Orleans can please correct me. But I believe in the end, we looked at the historic rate of sea level change into the future.

But I will say that it was the farthest we've ever pushed as an agency to look at potentially implementing a recommendation that was not just going to be for the historic rate but into the future.

Questions?

Type questions in the chat box.
We will answer as many
as time allows.

For more information:
<http://www.corpsplanning.us>
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Camie: Next question is: At what point in the planning process do we need to have assurances from the sponsor about property acquisition or screen out the alternative?

Jeremy: Okay. That's a great question. So at the Tentatively Selected Plan meeting, Mr. Brown is going to directly ask you and the sponsor if they're willing and able to use eminent domain if you have these buyouts. Again, we're just talking about the variations of buyouts. We're not talking about the other flood proofing.

So if you need eminent domain, that's going to be the time where the sponsor is going to have to really step up. With a draft report and then final report, you'll have various pieces of a letter of intent from the sponsor saying, they're willing and able to do it. So that'll be where the more formal acknowledgement is.

Thank you, New Orleans. New Orleans said they actually looked at the base flood evaluation based on the intermediate projection, so even better than I thought. So we are actually pushing the envelope on that one.

Go ahead.

Maria Wegner: Well, I was just going to say, Jeremy, if that would be the federal plan, though, and the sponsor doesn't want to, then we're really looking at a locally preferred plan going forward from that, right?

Jeremy: Well, it depends. If the entire plan is a buyout and the sponsor is not going to be willing to do eminent domain, I don't think we would be going forward with a locally preferred plan.

If a buyout is a piece of a much larger plan - for example, maybe the buyout's a quarter of the plan and the other three quarters are elevation in place or structural, then, yes, we may have a locally preferred plan. So I guess I agree with you, Maria, but on a case-by-case basis.

Camie: There is a follow on with the Southwest Coastal. It said: Did the range of sea level change include expected sea level rise per the U.N. report?

Jeremy: The range followed the current guidance that I listed on the slide just a couple of slides ago, the ER 1100-2-8162; I think that's it. It looked at the intergovernmental panel curves as dictated through that policy. So that team did embrace the policy and did a very good job with it.

Camie: All right. There is a question: With respect to appropriate level of analysis, it was mentioned that it could be done on a house-by-house damage element basis. Then it goes on, "although incremental justification is incredibly important from an economic standpoint, is there any concern that this method may cause negative public perceptions due to the regressive nature of that type of federal spending?"

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Jeremy: Wow. I feel like I'm the Chief or Ms. Darcy up at the hearings. Yes. There is always concern about negative public perception. And we have to work through that with our sponsors, and we have to work through that with our local resource agencies and our public investment.

I don't think we typically couch it in that perspective. I think we more typically couch it as, you know, I'm an economist and I'll be the first to tell you that incremental analysis isn't the end-all, be-all to get to risk management.

So I think the question really becomes: If we're a risk management agency, how do we look at it? And there are multiple different ways to look at it. On the North Atlantic coast, we're seeing very densely, heavily populated areas. So when you start getting down to an area that's going to have these types of plans, you're really looking at a lot of folks in a very small footprint.

So I mean there is a concern there were we've seen others on coastal areas where it looks like a checkerboard and you might have one house here and another house a couple of miles down the road kind of thing.

Again, there is no broad brush answer for that today. So I'll just say it's really a case-by-case basis.

Maria, I know you have a lot of thoughts. Do you want to jump in on that?

Maria: I think it really just depends also on what your evaluating and why. We don't want to leave isolated structures, for example. Maybe thinking about what reasonable groupings of homes or increments would be, would really help to make the case for the right level or detail in that analysis.

And there are a whole host of problems associated with doing structure by structure, starting with you're using a generic damage curve. So the point of using a precise cost number to decide on the structure basis just doesn't even always make sense. And it especially doesn't make sense from a flood risk management perspective.

And I think if you have questions, it's not just the economist. I think the formulator and the economist need to come together and say, okay, what makes sense and let's make that case instead of letting the economics fully drive that formulation aspect.

Jeremy: Right. Exactly.

Camie: We have another question: Can you clarify if we can proceed if a sponsor wishes to make the eminent domain a federal action?

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Jeremy: I'm not quite sure what the basis of the concern is with that question. If I get this wrong, please retype it. But I'm interpreting your question as the sponsor may not have ability to do eminent domain and has asked us to do it on their behalf.

Without getting too much onto an area that I'm not 100%, my understanding from talking to counsel and real estate is if we need to help execute eminent domain for a sponsor, I believe we can.

Are there any good example case studies of a nonstructural alternative that doesn't only propose blanket buyouts? Yes, there is. Southwest Coastal Louisiana is not just proposing blanket buyouts. Shrewsbury, New Jersey that I just looked at yesterday is very good. They're actually proposing a deployable flood wall and structure flood proofing.

Fire Island to Montauk Point, the New York District is doing, has got, I don't know, 4, 5000 structures in New York area that they're looking to elevate in place. I know the Mississippi Coastal Improvements Program looked at a lot of that with high hazard areas.

Again, nonstructural doesn't just have to mean that we buy out or elevate or flood proof. I've also seen a number of very well written ones that have good flood warning systems where the sponsor is stepping up. Mill Creek in Nashville, Tennessee was one that we just got through and signed. I know my buddy (Dave Bucaro) is out there and Chicago District's Des Plaines project, I know was a very good one. They kicked off a lot of the discussions on this.

If you'd like to send me an e-mail and you didn't catch all of those, I can send you an e-mail and reiterate which studies they were.

Camie: So the question now: What is the guidance for structures located in the floodway. Is it acquisition only?

Jeremy: Yes. We're not going to elevate structures in the regulatory floodway. I don't believe that there is a specific policy I can point you to right now. But I can tell you that, that came up on several recent studies - and Mr. Brown was pretty adamant about not wanting to elevate in the floodway.

Now having said that, I think we did look at one on Mill Creek where they were really on the fringe. So, again, that's a complicated question about what is defined at the regulatory floodway and to what extent. But as a general policy, we should not be elevating within the floodway and leaving structures there and people in harm's way.

Camie: Next question: If flood proofing and raising are allowed to be voluntary, what estimated participation rate will the agency consider to be a complete plan?

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Jeremy: So that's a good question. We don't have a - this is in, this is out threshold. I will tell you that there have been several ways to look at this. And it gets back to the incremental analysis. If you incrementally analyze every structure and every structure is justified, you don't have to really answer that question.

If you look at it as like Maris said on a risk-informed area and a dense population, I think Fire Island and Montauk Point did this in New York or is going to. They did a sensitivity analysis to say what if. And so as a reviewer, I wouldn't say it has to be 70% or 80%. I would say, what if.

And we would need to be able to clearly communicate to decision makers that it's not - let's pretend there is a neighborhood with 100 elevations. 20 structures are not carrying the entire neighborhood. And I think that's more of what it's trying to get to.

Camie: Next question is: Ask whether eminent domain costs are cost shared?

Jeremy: They are. That can be cost shared. There are a number that we can cost share. Some of them - the uniform relocation costs, yes. Some of the costs of doing - even doing eminent domain includes the Land, Easements, Rights-Of-Way, Relocation and Disposal Areas (LERRD), which you'd have to buy out anyway. So I would say that some of those aren't. I have several real estate contacts and counsel contacts that I can provide you with to get you an exact specific.

But, yes, that's one of the reasons why we want to retain eminent domain so we can actually be a part of some of these things. Again, I have spoken very general terms. If you have a more specific question on your study about what's included and not, please shoot me an e-mail and I'll get you to the appropriate subject matter expert.

New Orleans corrected me. Thank you. Eminent domain is a LERRD cost. So thank you for that.

Jodi Creswell: Here's clarification on the question about if the sponsor wants us to do the buyout. And it says: There would be cases where the sponsor wants the federal government to be the heavy so they can avoid bad publicity. Would we...

Jeremy: Yes. Again, that's why I say we're truly not tone deaf when we say this. But if the sponsor is looking for us to be the total bad guy, it's not going to be very positively worked through the system.

The sponsor is going to have to give us a letter of intent with the approved and appropriate language that's going to be required to go through counsel and real estate in their letter of intent. I think we would stand up with them and say this is right; this is in the public good, et cetera. And I know New Orleans district had a pretty tough time with that on Southwest Coastal at a lot of their public meetings. Even though they weren't doing eminent domain, they had a lot of pushback on their structure raises.

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We're not going to be able to stand up completely for the sponsor and say, it's all on us. It's eminent domain because of us. They're going to have to stand up, too.

Jodi: There is a question about when we expect to see Implementation Guidance for Executive Order 13690.

Jeremy: I'm going to phone Maria since she's the point of contact for planning.

Maria: Yes. The implementation guidance for 13690 has to go through a public process. And so we are preparing the Federal Register Notice right now that we'll go out and ask for comment just in general areas around it, its implementation and applicability to the Corps of Engineers.

And then probably take a little while even after that because we still need to write it, consider those comments, respond to them and then put out the draft version internally and externally for comment, just based on the way the Executive Order was written.

So it's going to be a little while. I think we had a very aggressive goal originally to have it done this fiscal year. I'm guessing it'll take a little bit longer than that. Just knowing the process, it'll be a little while. And we can't implement it until we go through that public process. So we need to keep using the 11988, the existing regulation, ER 1165-2-26 until that happens.

Jeremy: Great. Thank you. The next one - they're jumping around. I'm sorry.

Do we have a list of possible cost ranges for some nonstructural methods such as raising structures? I'll thank New York a few down for saying, yes, they use about \$200,000. I would highlight the nonstructural flood proofing committee. They have several cost models that I do believe, and I keep calling them out, but in a positive way, New Orleans.

The Southwest Coastal project developed a cost model. I believe that they worked through the ATR with the cost DX. So, yes, there are some costing methods out there for various types of flood proofing. And I would start with Randy Behm and the Nonstructural Flood Proof Committee if you need some specific help on how to estimate costs.

Thank you, New Orleans, yes, for correcting me. Eminent domain is a LERRD cost, so it does account. Now what I will highlight with that is, is LERRD is fixed at 35% - or the cost share for nonstructural is fixed at 35%. So if that eminent domain gets them up and their LERRD to the 35% threshold, it may not be directly cost shared but it is attributable toward the cost share of the project.

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Jodi: There is a question about - for buyouts, if WRDA language has indicated voluntary participation, do we need eminent domain?

Jeremy: If you have a specifically authorized project that is specifically directed by Congress that voluntary would be okay, I would say we would have to consider that eminent domain might not be used. And I'm being very careful with my language, and we would have to work with counsel when writing the implementation guidance to determine whether or not it trumps the Uniform Relocation Action requirements of Public Law 91-646.

So that's a very specific question. If you have a specific example or if someone has asked you to do some legislative drafting service, I'd be happy to help.

The only mention in the PB of the floodway is given below. What policy guidance justifies no raises of structures in the regulated floodway? Also, does that include building structural levees, flood walls as “no building in the regulated floodway.”

It's not just our policy. It's FEMA's policy that if a sponsor or an area or an entity is going to continue to maintain being in the FEMA defined program, NFIP [National Flood Insurance Program], you can't build in the floodway. And I mean they literally say zero-change to the hundred-year water surface elevation in the floodway.

So, yes, I can't point you to the specific location in the planning guidance notebook that says, thou shalt not. But I can tell you that we're not going to do it. And one of the reasons we're not going to do it is it could force the sponsor into non NFIP compliance.

Now when I say not going to do it, if there is engineering documentation for raising a home and you clearly show that it meets NFIP requirements and we have done zero change to the flood plain, I believe that it would still be considered. But I can't say on a blanket we're going to build in the flood plain or not. Because it's very complex with the NFIP requirements and the locals have their own requirements on top of that.

Maria, I don't know if you want to add onto anything I may have missed.

Maria: Well, I mean, just that if you think about it from the context of flood risk management, that's generally where -- and I'm going to say generally -- where you have high velocity. You have deeper water, things that basically threaten human lives, not just their property. So the house can wash downstream, not a good situation. But you really put people at risk and first responders at risk by continuing to have people in that location.

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If you're going to make that case, it's going to be a heavy lift, not just from the compliance standpoint with the NFIP but just from thinking about a holistic flood risk management project.

Jeremy: Great. Thank you. I hope we answered all the questions. We still have 10 minutes. I'll be happy to leave early. But if there are any other questions, please feel free to send it into us.

Camie: We do have one more, Jeremy. I'm posting it to everyone here so you can see it.

Jeremy: Oh, great. What examples are rolling out that contain good information on OSE [Other Social Effects] accounting, especially life and safety?

I'm going to phone you again, Maria, on that one. I know you work a lot with IWR and folks. Do you have a good answer for that one?

Maria: I would say the one that we did the most work on life safety recently would have been the Dallas floodway and their study. I'm trying to think of its full name. Probably the RPEC folks can give me a hand there. Trinity River Project.

They actually did a full risk assessment, quantitative risk assessment to estimate life loss and consider how we might add or not add features to the project in order to buy down the risk to public safety. I thought they did a pretty good job of writing about it.

I'm trying to think. It seems like some of the California studies, also - Natomas has a risk assessment, but I'm not sure it got into their report. I'm trying to think of the name of the study. I know we did one more out of Sacramento district on life loss. Yes, Sutter Basin, there we go. Thank you.

The life loss estimating techniques are slowly coming into planning, and the model is undergoing certification, I think, this year. So I would expect that we would hopefully see more quantitative information. There is also - Jason Needham and Brian Harper did a webinar on the risk assessment, I think, last year. And that information is also available.

They - if you want to talk about whether or not or what you might write around life safety, you can let me know. And I can hook you up with some people that do, do a lot of work in that area and could help given the context of your study.

Jeremy: Great. Thanks, Maria. And I believe there is a consequence in HEC-FIA class as well that's taught through the PROSPECT curriculum that can be taken as well.

Jacksonville, I'm sorry. I see that you had to repost this. I didn't mean to skip you. "What mission area is the more than 50% recreation benefit guidance for?" It's for nonstructural, specifically. If you have a

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nonstructural project, alternative use of land can be used more than 50% to justify the overall project. It is a specific policy related just to nonstructural.

If you have a shoreline project, for example, you can only use up to 50% of the benefits, as you know from recreation. So it's a very special policy for nonstructural that we've really yet to fully embrace and push, I feel, as an agency with respect to buyouts.

We look at it. We say here's what it costs to buy demo and add in all of the relocation assistance which could be \$50-\$100,000 plus. And then we (unintelligible) buyouts aren't justified, but specifically for nonstructural.

"I assume 200,000 figure is based on pier on beam. We have used FEMA published figures for different structure type and flood proofing methods. It was successful in approval as of a couple of years ago. Thank you. SPA."

Again, if you have those specific cost questions, I can't over-emphasize enough that's what the nonstructural flood proof committee is for, not just specifically for cost but to be there to help with that technical guidance if your local PDT needs it.

I haven't seen any more come in, Camie. If you have some, tell me before we get off.

Jodi: There was: Can flood insurance premium reductions be used in benefit calculations?

Jeremy: An economic guidance memorandum from about six or seven years ago; it might even be longer -- I can't quote the number off the top of my head at the moment -- is out there on the Web. It does allow for the inclusion of NFIP administrative cost savings. But it actually says - in the EGM it gives you a number per policy that you say and it's very small. I mean, it's less than \$1000, I think. And we're not supposed to index it.

The short answer is yes; we do have an ability to use administrative costs as a benefit for the NFIP still as a legitimate NED benefit. Long answer is that it's complicated and it's probably not going to give you as much benefit as you might think.

Jodi: So there was one that says - talked about the flood insurance premiums. And then after that it says elevation or evacuation would reduce the insurance premium reductions over years due to Biggert-Waters.

Jeremy: I think that's tied to the flood insurance premiums but it's not actually the premiums that we can claim benefits. It's administrative costs for implementing those.

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Okay. Well, it's 4 minutes until. Thank you for a very good question-and-answer session. I'm available at the very end slide. You can e-mail or call me, feel free. Particular if you need some specifics, I very much appreciate New Orleans not even knowing, but helping me out a lot today. And New York, you've done a very good job recently as well. If you need any help, contact those folks or - again, a big plug for the nonstructural flood proof committee and Mr. Randy Behm in Omaha.

And that's it for me.

Camie: Yes. Sure. Thank you everybody for your participation. That was a great webinar. Thank you Jeremy, Maria and Jodi Creswell for helping facilitate the questions. I wanted to remind everybody that the presentation along with the questions and answers will be posted on the planning toolbox. So if you have colleagues that weren't able to join us today, they can access that. Or if you need to look at it for future reference, that will be there for you.

So thank you very much. We'll go ahead and close the webinar. And we'll talk to you again in two weeks.

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