TMAC

Technical Mapping Advisory Council Meeting
Virtual Public Meeting
February 23-24, 2022

TMAC Members

Doug Bellomo, *AECOM, Chair*
Ed Clark, *NOAA, NOAA Representative (Day 1)*
Joshua Davies – *Texas Division of Emergency Management, State Mitigation Officer*
Vince DiCamillo, *Stantec Consulting, Mapping Member*
David Guignet, *Maryland Department of the Environment, State CTP Representative*
Carey Johnson, *Kentucky Division of Water, State CTP Representative*
David Love, *Mecklenburg County Storm Water Services, Local CTP Representative*
Robert Mason, *USGS, DOI Designee*
James Nadeau, *Nadeau Land Surveys, Surveying Member (Day 2)*
Jon Paoli, *Iowa Homeland Security & Emergency Management, GIS Representative*
Luis Rodriguez, *FEMA, FEMA Designee*
Jonathan Smith, *Natural Resources Conservation Service, USDA Designee*
Jeff Sparrow, *Moffatt & Nichol, Chair*
Michael Tischler, *USGS, USGS Representative*

Subject Matter Experts

Stephen Aichele, *USGS*, *Future Conditions Subcommittee*
Stacey Archfield, *Future Conditions Subcommittee*
Salomon Miranda, *Future Conditions Subcommittee*

Government Attendees

John Ebersole, *FEMA, Legal Advisor*
Brian Koper, *FEMA DFO*

Support Staff

Henry Cauley, *Team Deloitte*
Milani Chatterjilen, *AECOM*
Jen Marcy, *Atkins Global*
Phetmano Phannavong, *Atkins Global*
Ann Terranova, *AECOM*
Molly Tuttle, *AECOM*
Sarah Vining, *Team Deloitte*

Purpose

The purpose of the virtual Technical Mapping Advisory Council Public Meeting was to: (1) review and approve the 2021 TMAC Annual Report, and (2) develop recommendations for FEMA to consider regarding the 2022 Tasking Memo.

Welcome, Roll Call, and Administrative Items

Mr. Brian Koper, TMAC DFO, welcomed everyone to the first day of the February 23-24 virtual TMAC Public Meeting. Mr. Koper conducted a roll call of the meeting attendees and reviewed the logistics and requirements for the TMAC Public Meeting. Mr. Doug Bellomo thanked Mr. Koper for the welcome and thanked the TMAC members for attending the meeting today. Mr. Bellomo provided an overview of the meeting agenda and requested a motion to open the meeting. Mr. Koper put forth the motion to open the meeting and Mr. Carey Johnson provided the second.

Overview: Chapters 1, 2, 5

Mr. Bellomo began by again thanking everyone for all of their hard work and noted that the two topics that were tasked by FEMA for the 2021 report have not proven to be the easiest topics to address. Mr. Bellomo continued that the report development process has been mostly typical with both exciting moments and challenges, and some information for both topics has been moved to the appendices.

Ms. Molly Tuttle then provided an overview of Chapters 1, 2, and 5, focusing on the highlights in each of the chapters so that the TMAC would have time to ask questions or comments at the end. Ms. Tuttle began with an overview of what the TMAC has accomplished since its inception, then shared the three formal recommendations that will be put forth in the 2021 TMAC Annual Report. Ms. Tuttle followed this by sharing the table of contents, acronyms, and abbreviations sections. Ms. Tuttle also shared the key concepts section, which includes information on binary vs graduated risk, enterprise risk management (ERM), future conditions, the National Flood Insurance Program, probabilistic versus deterministic approaches, and "big R" versus "little r" recommendations. Ms. Tuttle completed the overview of Chapter 1 by reviewing the sections on the background of the TMAC, the TMAC Charter and Bylaws, the members of the TMAC and their subcommittee status, and the 2021 Tasking Memo. Ms. Tuttle paused for questions or comments on the information within Chapter 1 and none were put forward.

Ms. Tuttle then moved to Chapter 2, which focuses on stakeholder engagement. Ms. Tuttle provided an overview which explained that the stakeholder engagement outreach began with the 2020 TMAC Annual Report. Ms. Tuttle shared the stakeholder engagement executive summary, which includes key goals, themes, major obstacles within the process, and an overview of the response demographics. Ms. Tuttle reviewed the major themes and findings from the 2021 stakeholder engagement efforts. Ms. Tuttle emphasized that equity issues were discussed more in 2021 than 2020, but that even these discussions were just scratching the surface. Ms. Tuttle concluded this section by sharing information on the first and second tier surveys that were used

at ASFPM and the National Flood Conference, and compared the 2020 and 2021 stakeholder engagement efforts and findings. Ms. Tuttle asked for any comments or questions on Chapter 2, and none were received.

Ms. Tuttle concluded by reviewing the content in Chapter 5 of the report, which contains the conclusions and recommendations based on the 2021 Tasking Memo.

Discussion: Chapters 1,2,5

Mr. Bellomo then thanked Ms. Tuttle, noting that Chapter 5 is really the highlight of all the work the TMAC put in for this year. Mr. Bellomo also thanked Mr. Scott Giberson and Mr. Jim Nadeau for all of their work on developing the stakeholder engagement chapter. Ms. Bellomo opened up the conversation for any thoughts on these three chapters, but no comments were put forward. Mr. Bellomo asked for any comments on section 2.6, which concerns future TMAC stakeholder engagement efforts, and added that smaller groups allow for more intimate conversations. Mr. David Love replied that it would be worthwhile to reach out to stakeholders on the local level who are working in the affordable housing space since there is a lot of emphasis on future planning. Mr. Bellomo agreed on the importance of paying attention to groups that have been traditionally underserved. Mr. Bellomo asked if there were any other comments on these sections and none were put forth.

Overview: Chapter 3

Mr. Bellomo stated they would begin the conversation on the Future Conditions chapter and would then pause for the Public Comment Period. Mr. Johnson and Mr. Jonathan Smith began the presentation on Chapter 3. Mr. Johnson thanked Mr. Robert Mason for his support while Mr. Johnson was out of the office over the past few weeks. Mr. Johnson added that the chapter looks much different now than the last time it was reviewed by the TMAC. Mr. Johnson stated that there were roughly 45 recommendations and sub recommendations related to future conditions in the 2015 report and the subcommittee had attempted to organize all of this information into tables. Mr. Johnson began to provide the overview of the chapter, beginning with the introduction and then moving to the four main components of the Future of Flood Risk Data (FFRD) initiative. Mr. Johnson added that the subcommittee firmly believes they have reviewed the recommendations adequately in the spirit of the 2021 Tasking Memo. Mr. Johnson also noted that while the subcommittee did not want to do word by word editing of each recommendation, they did use this chapter to discuss the “big picture” changes that were proposed.

Mr. Bellomo stated he would like everyone on the TMAC to review the proposed changes to the recommendations and suggested the TMAC take a half-hour break for review. The TMAC would then return, conduct the Public Comment Period, and resume the conversation on these recommendations. The TMAC then went into a 30 minute recess.

Public Comment Period

Mr. Koper began the Public Comment Period by noting the rules for making public comments, including time limits and whether the TMAC would be required to respond. Mr. Koper noted that two individuals had registered to provide public comment at this time, Mr. Chad Berginnis of ASFPM and Ms. Shana Udvardy of the Union of Concerned Scientists. Written copies of both of their comments can be found in the appendix section of the meeting minutes. No other public comments were put forward and Mr. Koper concluded the Public Comment Period.

Mr. Bellomo noted that while the TMAC was not obligated to respond to the public comments, he did feel that it was worth addressing some parts of both comments made today. Mr. Bellomo stated that regarding Mr. Berginnis's comment on the special flood hazard area, it will be important when finalizing the 2021 report that the TMAC makes it clear that those lines and the laws that govern them remain in place. Mr. Bellomo added that the development of a probabilistic approach does not necessarily mean that the special flood hazard area will go away. Mr. Bellomo expressed gratitude that both commentators noted the importance of future conditions and mapping. Mr. Bellomo also acknowledged Ms. Udvardy's comment about being bolder by stating human caused change. Finally, Mr. Bellomo stated that while the TMAC has worked hard to ensure public feedback is received on the report, more can be done to improve this process. Mr. Johnson expressed his agreement with Mr. Bellomo, and the Public Comment Period was completed.

Discussion: Chapter 3

Mr. Johnson brought the discussion back to the focus on Chapter 3, and specifically table 3-1, which highlights all of the future conditions recommendations and any potential changes proposed by the TMAC. Mr. Johnson noted that there were several editorial elements the subcommittee still needs to discuss regarding this table. Mr. Johnson added that while the purpose of the table is to be as transparent as possible, much of the discussion is actually included in Appendix C. Mr. Bellomo then suggested that rather than going line by line through the table, the TMAC could review page by page and pause whenever there was an issue.

Mr. Bellomo asked for any comments on page one, and Mr. Mason replied that there were not a lot of changes to the recommendations on this page but that the table is very helpful for calling out the changes that were made and justifying them. Mr. Mason noted that Future Condition Recommendation 1.4 should probably be revisited again and Mr. Johnson agreed. Mr. Bellomo then asked about any comments for the information on page 2, and also provided some clerical edits for one of the recommendations on this page. No other comments for page 2 were put forward and the TMAC moved on to page three, where again, no comments were put forward.

Mr. Bellomo asked for comments on page four and Mr. Mason noted that information was missing in the righthand column for Future Condition 3.8. Mr. Johnson thanked Mr. Mason for catching this error. Mr. Bellomo then commented that on page five, he was unsure about the language used in part of Future Condition Recommendation 4. Mr. Mason replied that he had already spoken to Ms. Stacey Archfield about this and shared the revised language in the chat box. Mr. Bellomo stated to the TMAC that when voting on the final report, this updated

language provided by Mr. Mason is what would be included in the report. Mr. Bellomo then asked for any comments on pages six or seven, but none were put forward. Mr. Bellomo did note that there were some blank sections on page seven and Mr. Johnson agreed to craft language to put into those spaces. Mr. Bellomo concluded by asking for any comments on page eight and none were received. Mr. Smith stated that FEMA's latest response to the status of all of these recommendations was included in the appendix of the report, and that the TMAC's suggested edits to these recommendations was based on those latest responses from FEMA. Mr. Smith added that readers of the report would need to review this information in the appendix to get a full understanding of the recommendations that were reviewed in this chapter.

Mr. Bellomo thanked the subcommittee for all of their hard work in reviewing and updating the recommendations. Mr. Johnson then spoke to the thematic grouping of the recommendations that were updated, noting that they could be categorized into three groups. The first would be those that were updated to add clarity, the second were those that were updated to broaden the existing recommendation, and the third were those that were updated to recognize scientific or programmatic advances. Mr. Bellomo asked for any final comments and Mr. Vince DiCamillo recommended updating the language for future conditions, based on the public comment made by Ms. Udvardy. Mr. DiCamillo suggested updating the definition to say that future conditions "encompass both natural and human-caused…" and the rest of the TMAC agreed. Mr. DiCamillo put the revised definition in the chat box and the TMAC concluded their discussion on this chapter.

Overview/Discussion: Chapter 4

Mr. Love began the overview for Chapter 4, Enterprise Risk Management. Mr. Love noted that much of the work undertaken by the subcommittee required subjective judgement which made the work more difficult. Mr. Love added that the survey work conduced by the TMAC did not find evidence of ERM being used in practice. Mr. Will Lehman continued the overview by noting the subcommittee was tasked with four elements related to ERM in the Tasking Memo. Mr. Lehman explained the approach taken by the subcommittee, which began by working to define ERM. Mr. Lehman noted that one challenge was that ERM and risk management were not necessarily the same, and so the subcommittee went to great lengths to define ERM. Mr. Lehman also noted that OMB Circular 123 requires federal agencies to implement ERM.

Mr. Lehman continued his overview by jumping to section 4.2, which attempted to evaluate and understand FIMA's strategic objectives. Mr. Lehman lamented that the subcommittee did not feel it had an inside enough picture of these strategic objectives in order to complete this work properly. Because of this challenge, Mr. Lehman stated that the subcommittee attempted to conduct an illustrative application of ERM for FIMA. Mr. Lehman then reviewed the risk matrix that was developed as part of this illustration and explained the balances and tradeoffs found in the matrix. Through this effort, Mr. Lehman and the subcommittee determined that the objectives of some branches of FIMA might be at odds with the risk management of other areas at FIMA, and so the subcommittee recommended taking a holistic approach to look at risk from the executive level of the organization. Mr. Lehman added that when trying to correct for one

entity within FIMA, other unintentional risks might be created for other programs within FIMA and FEMA. Mr. Lehman concluded that though the subcommittee was limited due to the lack of visibility inside FIMA, the subcommittee did determine that FIMA should take more actions that will allow them to operate within their acceptable appetite for risk.

Mr. Lehman noted that the subcommittee also determined it would not be advantageous to operate ERM systems at the county, state, and Federal level, as the strategic objectives at one level might be at odds with the strategic objectives at other levels. Mr. Lehman noted that through the work of the subcommittee, two formal recommendations were developed. The first was for FIMA to continue to use and implement ERM, and the second would be to use ERM to leverage graduated risk products. Mr. Bellomo thanked the subcommittee for all of their work and asked if the TMAC had any additional questions. No additional questions were put forward and Mr. Bellomo concluded by noting that this topic proved to be much more difficult in practice than when it was first introduced in the Tasking Memo.

Closing Remarks

Mr. Bellomo thanked the TMAC for all of their hard work today and reminded the TMAC members that when voting tomorrow, the changes that were identified today would be incorporated into the final report. Mr. Bellomo recommended that the TMAC members review all of the appendices prior to voting tomorrow as the appendices were not set to be reviewed during the meeting. Mr. Bellomo reminded the TMAC of the agenda for the second day of the meeting. Day One of the TMAC meeting was then adjourned.

Welcome, Roll Call, and Administrative Items

Mr. Koper welcomed everyone back for the second day of the virtual TMAC Public Meeting. Mr. Koper conducted a roll call of the meeting attendees and reviewed the logistics and requirements for the TMAC Public Meeting. Mr. Doug Bellomo thanked Mr. Koper for the welcome and thanked the TMAC members for their hard work on day one.

Recap: TMAC Annual Report

Mr. Bellomo provided a recap of the discussion from the first day of the meeting. Mr. Bellomo stated that the TMAC reviewed all of the chapters in the report. Mr. Bellomo noted that an adjustment was made to one of the future condition recommendations in Chapter 3, as well as changes to table 3.3 in the same chapter. Mr. Bellomo continued that in Chapter 4, the TMAC discussed ways to clarify that there does not have to be an explicit choice between binary and graduated flood hazards and risks, and that clarifications were needed in this chapter in order for readers to understand that the TMAC was proposing both approaches at this juncture. Mr. Bellomo also noted that during the Public Comment Period it was suggested that the TMAC do a better job of engaging the public in soliciting feedback on the draft report. Mr. Bellomo then asked for any comments on this recap of the first day of the meeting and none were put forward.

Discussion: Recommendations

Mr. Bellomo stated that three new recommendations would be formally put forward in this report: AR38, AR39, and AR40. The first recommendation, AR38, concerns adopting the updated future conditions recommendations as updated in the 2021 TMAC Annual Report. No TMAC members expressed any concern with this recommendation. Mr. Bellomo then addressed AR39, which recommends that FIMA use ERM to accomplish its strategic objectives. Again, no comments were put forward. Mr. Bellomo then reviewed AR40, which states that FIMA should leverage ERM to promote the use of graduated risk, and Mr. Johnson recommended spelling out the acronym of "FRM" to "Flood Risk Management". Mr. Luis Rodriguez added that more broadly, all of the acronyms in each of the recommendations should be spelled out, as the recommendations often stand alone, without the context of the report to help explain the acronyms they contain. Mr. Bellomo strongly agreed with this sentiment.

Mr. Johnson noted that in Chapter 3 the acronym "FFRD" is used repeatedly and that the entire report should be reviewed for acronyms that need spelled out. Mr. Love then asked for clarity on the language in the first paragraph of page 5-2, and Mr. Bellomo explained that the language is attempting to explain that a cascading ERM framework is not in anyone's best interest since the application of ERM at the state or local level will likely be different than the application of ERM at the Federal level. Mr. Lehman agreed that the language seemed confusing as currently written and recommended alternative text to better explain this section. Mr. Love thanked Mr. Bellomo and Mr. Lehman for the explanation. Mr. Bellomo asked if there were any more comments or questions, and none were received.

Motion to Vote

Mr. Bellomo noted that the TMAC was ahead of schedule and that a motion to vote would be needed for the TMAC to vote on the report following the Public Comment Period. Mr. Johnson asked for clarification on what the vote would be for, and Mr. Bellomo explained the vote would be to adopt the changes discussed yesterday and today, as well as to formally approve the final report. Mr. Johnson then put forward the motion, and Mr. Rodriguez provided the second.

The TMAC then went on break until the Public Comment Period.

Public Comment Period

Mr. Koper welcomed everyone back and began the Public Comment Period by noting the rules for making public comments, including time limits and whether the TMAC would be required to respond. Mr. Koper noted that no public comments were submitted ahead of the meeting today and asked for any public comment from the audience. No public comments were put forward and the public comment period was closed.

Deliberation and Vote: Recommendations and 2021 TMAC Report

Ms. Tuttle shared the report on her screen and Mr. Bellomo asked for any comments from the TMAC. No comments were put forward and Mr. Bellomo requested that the TMAC members submit their vote for the report in the comment box. The TMAC voted on the 2021 TMAC report and the report was approved. Mr. Bellomo thanked the TMAC for all of their hard work,

noting that this report proved to be more difficult than it first seemed when the Tasking Memo was issued. Mr. Bellomo added that the report contains three strong recommendations, and he was proud of how the group came together.

Overview: 2022 Tasking Memo Development

The TMAC then moved to discuss the 2022 Tasking Memo. Mr. Bellomo began the discussion by asking if there were any specific recommendations on what the TMAC should work on in 2022. Mr. Love noted that while the possibility of an interim report has been discussed, there was concern this year about releasing the material early and the information being misunderstood or misconstrued. Mr. Love recommended the TMAC play it by ear each year as to releasing an interim report or not. Mr. Bellomo agreed on the need to communicate the draft status of any information that is released prior to the report being formally approved. Mr. Koper then stated that FEMA hopes for the Tasking Memo to be collaborative, and that in years past FEMA has solicited feedback from the TMAC on what should be included in the Tasking Memo. Mr. Koper added that the goal was not to be too prescriptive and create bias so the conversation would just be done orally and not written on the screen for reaction.

Mr. Johnson thanked FEMA for the opportunity to provide input and recommended that more participants and stakeholders be included in the development of FFRD. Mr. Bellomo agreed it would be smart to include more participants in the creation of future conditions tools. Mr. Bellomo also stressed the value of an iterative process or tool where communities could see how different development plans within their community may take the community out of its current level of accepted risk in the future, adding that this type of process is very healthy for how flood risk is managed today. Mr. Davies then recommended leveraging webinars and focus groups as a means to share information with the public. He also recommend leveraging state hazard mitigation officials and Mr. Bellomo went farther to recommend state and local emergency management agencies and stakeholders.

Mr. Bellomo noted that FEMA had issued an RFI for what changes to the NFIP might look like and recommended that TMAC talk with stakeholders about floodplain management reform in the context of new technologies. Mr. Sparrow stated that the stakeholder engagement feedback over the last two years have found a lot of concern amongst stakeholders regarding the shift to a graduated risk. Mr. Sparrow suggested the TMAC could investigate what this change to graduated risk means for the "three-legged NFIP stool". Mr. Rodriguez suggested that the development of a change management strategy related to this shift to graduated risk is likely warranted and could be a good thing for the TMAC to address. Mr. Rodriguez added that there are many conversations underway regarding the future of the Risk MAP program and that the program has recently identified five priority areas that will help define and guide the program moving forward. Mr. Rodriguez listed the five priority areas, which are: 1) maintain 80% NVUE, 2) advance ongoing Risk MAP projects, 3) address remaining statutory requirements, 4) advance the Future of Flood Risk Data (FFRD) initiative, and 5) modernize Risk MAP IT infrastructure.

Mr. Bellomo thanked Mr. Rodriguez and emphasized the change management strategy and advancement of technologies as two big items to consider. Mr. Bellomo added that quick changes are often met with resistance, which in turn slows down progress, and that the TMAC could be uniquely positioned to engage with stakeholders on these issues. Mr. Guignet agreed with Mr. Rodriguez and noted that states are looking for a tool that tells them why flooding is occurring, and especially, the causes of flooding that are occurring outside of the regulated flood plain. Mr. Guignet added that this type of tool to help tighten regulations up stream needs to be a national tool, and not 50 different tools. Mr. Rodriguez suggested a national data service model that allows data to come in from multiple sources and to serve different groups of stakeholders. Mr. Rodriguez added that this would not be easy to make happen but is very much in line with the modeling that underlines the idea of future flood risk framework. Mr. Bellomo replied that it would be great to have a tool like this, but that there are also many public policy considerations that need to be made as well.

Mr. Bellomo asked if there were any thoughts on what residual risks in unmapped areas could mean for the TMAC in 2022. Mr. Bellomo noted that FEMA has only mapped one million miles, with another million miles yet to be mapped, and that doubling the number of mapped miles would also double maintenance costs. Mr. Bellomo asked if there were thoughts on unmapped miles of study and residual risk. Mr. Sparrow agreed it is a good question to consider and that it ties back into the floodplain management discussion, making sure information is available to planners before new areas are developed. Mr. Bellomo commented that some stakeholders may assume that because an area has not been mapped, it therefore does not have any flood risk.

Mr. Bellomo brought up the Justice 40 initiative and underserved communities, noting that traditionally underserved communities in many cases will have challenges from a capability and capacity perspective to manage flood risks, and that a one size fits all tool for data usage will likely leave some communities behind. Mr. Tischler added the first Native American member of the Cabinet is currently serving and that her priority is to better serve underserved communities. Mr. Tischler added that one of the ways she is working to see this goal accomplished is by producing maps in multiple languages and with local language naming conventions.

Mr. Koper then thanked the TMAC for this discussion, noting that it had been very helpful.

Next Steps and Closing Statements

Mr. Bellomo thanked the TMAC for all of their hard work the past two days and over the past year on the report. Mr. Bellomo then asked for a motion to close the meeting. Mr. Sparrow put forth the motion and Mr. DiCamillo provided the second. The TMAC meeting was then closed.

Thank you for the opportunity to provide public comments today. I would like to focus on the draft 2021 TMAC report and have three basic comments:

The first comment is our ongoing concern related to how the transition from binary risk to graduated risk is framed and ultimately stated. Through TMAC's own stakeholder engagement surveys, floodplain managers who provided the most responses clearly identified confusion about a graduated risk definition and identified the fact that regulatory issues were barriers to the concept. At the same time, the data showed that when looking at a graduated flood risk map it was chosen as the best way to communicate flood risk. And we support having better tools like graduated flood risk to explain the basic concepts of floodplain management better. But my question is simple – why is this a – to be punny – a binary choice? Why does there seem to be little recognition of the fact that land use standards and codes, generally apply in certain areas or zones that have a definitive boundary? In the case of flood maps it is SFHA boundary. Then NFIP has many functions and the regulatory leg of the stool as well as mandatory purchase is dependent on a line on the map, period. It is maddeningly confusing when official documents like this report and others speak to the transition as an either or proposition while senior FEMA officials acknowledge the continued need for the regulatory line on the map. I could not disagree more with the solution proposed on page 4-9 of the draft report that states the problem of "the move to graduated risk products may create confusion for floodplain managers" being solved with "the confusion could be treated with increased and improved training opportunities." The problem could be solved by communicating clearly that transitioning to a graduated risk framework is inclusive of the important and necessary lines on the map to carry out local floodplain management codes and the mandatory purchase requirement. To date, this has not occurred.

The second comment relates to the suite of future conditions recommendations. Generally, we are pleased that TMAC has identified considerations of future conditions as imperative, recognizing the clear need for including future conditions in future products. As we are making unprecedented investments into our nation's infrastructure which will often have a functional life of several decades or longer, knowing tomorrow's flood risk is absolutely essential in an era of nonstationary. We urge TMAC and FEMA to do whatever is necessary to expeditiously implement future conditions identification.

Finally, the third comment relates generally to enterprise risk management. One concern that we have in reading the report is that it would seem that there is one concept not well explained which is the hierarchy of priorities, especially when those priorities have been established in law. It seems from the description that the top of the hierarchy is the agency's own strategic plan. And, for a nonprofit organization like ASFPM for example, that makes eminent sense. However, for an agency where the priority for a program is established in law, we would be concerned about the inordinate impact of the strategic plan that was developed without significant external stakeholder input (again, that is OK in many cases) on the fundamental question on whether to or whether to not carry out statutory requirements such as the National Flood Mapping Program. It would be helpful to better understand where statutory requirements fit into the enterprise risk management framework so that we can be

certain that TMAC's evaluation of this concept incorporates this consideration and that statute is not usurped by an agency's strategic direction at a given point and time.

Thank you.

Chad

Union of Concerned Scientists
ucsusa.org Two Brattle Square, Cambridge, MA 02138-3780 t 617.547.5552 f 617.864.9405
1825 K Street NW, Suite 800, Washington, DC 20006-1232 t 202.223.6133 f 202.223.6162
500 12th Street, Suite 340, Oakland, CA 94607-4087 t 510.843.1872 f 510.843.3785
One North LaSalle Street, Suite 1904, Chicago, IL 60602-4064 t 312.578.1750 f 312.578.1751

Michael M. Grimm
Assistant Administrator for Risk Management
Attention: Brian Koper
Designated Federal Officer for the TMAC
FEMA, 400 C Street SW
Washington, DC 20024

February 23, 2022

RE: Federal Emergency Management Agency (FEMA) Docket ID FEMA-2014-0022: FR Doc 2022-02282

My name is Shana Udvardy, I am the senior climate resilience policy analyst with the Union of Concerned Scientists. Thank you for the opportunity to provide comments today. I'd like to preface my comments to recognize the amount of time and effort the Technical Mapping Advisory Council (TMAC) put into the final draft of the 2021 TMAC Annual Report.

I have a few comments related to specific issues in the report. My overarching comment is that FEMA simply did not afford the public with sufficient time to review the final draft report and the appendices. Therefore, I respectfully request that FEMA and TMAC extend the deadline for public comment.

My overarching comment is that the report does not appear to meet the goal from the 2021 Tasking Letter tasking TMAC to advance the science on climate change and future conditions or recommendations on implementation as detailed in section 3.1.1.

My specific comments on the 2021 TMAC Annual Report include the following:

First, TMAC must revise the definition of future conditions under "key concepts". The definition incorrectly defines future conditions as: "*Future conditions. For the purposes of this report, and in alignment with the FEMA definition, "future conditions" encompasses both natural changes (e.g., sea level rise, erosion, rainfall patterns) as well as human impacts (e.g., population changes, land use policies, development)*." Sea level rise is not a natural change. The primary cause of sea level rise is human-induced global warming brought on by the burning of fossil fuels that increases atmospheric heat-trapping emissions. The report ought to include separately a definition of climate change-related impacts in addition to future conditions or alternatively, expand upon the future conditions definition to include climate change-related, natural, and socioeconomic-related impacts.

Second, TMAC must reconsider the language in Section "*C.1.4 2015 Future Conditions Recommendation FC-4*" that states: "*No actionable science exists at the current time to address climate change impacts to watershed hydrology and hydraulics*." Currently there are multiple examples of studies addressing

Union of Concerned Scientists
ucsusa.org Two Brattle Square, Cambridge, MA 02138-3780 t 617.547.5552 f 617.864.9405
1825 K Street NW, Suite 800, Washington, DC 20006-1232 t 202.223.6133 f 202.223.6162
500 12th Street, Suite 340, Oakland, CA 94607-4087 t 510.843.1872 f 510.843.3785
One North LaSalle Street, Suite 1904, Chicago, IL 60602-4064 t 312.578.1750 f 312.578.1751

climate change impacts on watershed hydrology and hydraulics. While inland flooding studies have been in an infancy mode for some time, new watershed level and national level studies have emerged, including *Inequitable patterns of US flood risk in the Anthropocene*[1] and "*The First National Flood Risk Assessment: Defining America's Growing Risk*" report released in 2020.[2] Therefore, TMAC ought to reconsider this statement by examining the latest science on climate change impacts on watershed hydrology and hydraulics.

Third, TMAC should expand upon equity as a key goal to ensure that the science and outreach is reflecting and reaching a diverse set of stakeholders. One potential way to do this in the future is to include demographic attributes such as race and ethnicity and gender when conducting surveys, such as the one summarized in the report.

Finally, and most importantly, TMAC must be bold in its efforts to address climate change as it moves forward with its future conditions work. Such work ought to include products and outreach around climate change-informed flood mapping and recommendations for minimum federal requirements and regulations.

In closing, I would like to echo my ask that FEMA extend the public comment period and that TMAC not vote to finalize this report at this time.

I want to thank the members of TMAC for their work and for the opportunity to provide comments.

Sincerely,

Shana L. Udvardy
Climate Resilience Analyst
The Union of Concerned Scientists
202-805-0075
sudvardy@ucsusa.org

[1] Wing, O.E.J., Lehman, W., Bates, P.D. et al. Inequitable patterns of US flood risk in the Anthropocene. Nat. Clim. Chang. 12, 156–162 (2022). https://doi.org/10.1038/s41558-021-01265-6

[2] First Street Foundation. 2021. The Cost of Climate: America's Growing Flood Risk. https://assets.firststreet.org/uploads/2020/06/first_street_foundation__first_national_flood_risk_assessment.pdf and technical methodology https://firststreet.org/research-lab/published-research/flood-model-methodology_overview/