



FEMA

# TMAC

Technical Mapping Advisory Council Meeting  
February 10-11, 2016

## **TMAC Members**

Juliana Blackwell  
Nancy Blyler  
Richard Butgereit  
Mark DeMulder  
John Dorman  
Leslie Durham  
Scott Edelman  
Steve Ferryman  
Carrie Grassi

Chris Jones  
Howard Kunreuther\*  
Wendy Lathrop  
David Mallory  
Robert Mason  
Sally McConkey  
Luis Rodriguez  
Christine Shirley  
Cheryl Small

## **Government Attendees**

Kathleen Boyer, FEMA, TMAC DFO  
David Bascom, FEMA

Mark Crowell, FEMA, TMAC ADFO  
Lynda Pilgrim, FEMA

## **Registered Public Attendees**

Ken Ashe, Amec Foster Wheeler  
David Conrad, Water Resources Policy  
Gilbert Jones, Dewberry  
Lin Shi, USGS

Velma Smith, PEW  
Jeff Sparrow, Michael Baker International  
John Sun, Stream Methods

## **Support Staff**

Kirsten Folkedal, Booz Allen Hamilton  
Laura Karnas, Booz Allen Hamilton  
Jen Marcy, Atkins Global  
Krista Bethune Melnar, AECOM

Mary Myers, Booz Allen Hamilton  
Meredith Tull, Booz Allen Hamilton  
Adam Warfield, Booz Allen Hamilton

*\*Attended on February 11, 2016*

## **Purpose**

The purpose of the meeting is to allow the Technical Mapping Advisory Council (TMAC) members to deliberate on the draft topics and potential recommendations to be incorporated in the *2016 TMAC Technical Review Report* and the *TMAC 2016 Annual Report*.

## **February 10, 2016**

### **Welcome/ Call to Order/ Roll Call**

Ms. Kathleen Boyer, TMAC Designated Federal Officer (DFO), welcomed members to the meeting. She then introduced Mr. Mark Crowell, Federal Emergency Management Agency (FEMA), who serves as the TMAC Alternate DFO (ADFO). Ms. Boyer provided an overview of the conference facility and proceeded with a roll call of TMAC members. Ms. Boyer reminded everyone of the *Federal Advisory Committee Act* (FACA) compliance provisions. She noted that the business goals for the meeting are to:

- Recognize the delivery of the final, full text of the *2015 TMAC Annual Report* and *2015 TMAC Future Conditions Risk Assessment and Modeling Report*, which are now available on the public Website at [www.fema.gov/tmac](http://www.fema.gov/tmac);
- Deliver a description of FEMA's mapping program to TMAC and begin the discussion of TMAC's charge to provide a review of the current program, including FEMA's plans to address the legislative requirements under *Biggert-Waters Flood Insurance Reform Act of 2012* (BW-12) and the *Homeowners Flood Insurance Affordability Act of 2014* (HFIAA). Mr. Luis Rodriguez, TMAC member, and Mr. David Bascom, FEMA, will discuss these items; and
- Listen to TMAC's discussion of how they will approach recommendations for 2016.

Ms. Boyer thanked the Council for their participation and turned the meeting over to Mr. John Dorman, TMAC Chair.

### **Process Schedule/Meeting Objective**

Mr. Dorman provided an overview of the agenda and said the objective of the day's meeting was to allow TMAC members to: (1) better understand FEMA's National Flood Mapping Program Description; (2) discuss and achieve consensus for definitions, criteria and process for producing TMAC's response to FEMA's National Flood Mapping Program Description; and (3) define assignments and next steps for TMAC's response.

### **Remarks**

Mr. Rodriguez thanked the TMAC for their efforts on behalf of FEMA, the Administrator and Mr. Roy Wright, Deputy Associate Administrator for the Federal Insurance and Mitigation Administration (FIMA). He said that FEMA appreciates the hard work of the TMAC members, Chair, and subject matter experts (SME) who served on the report subcommittees in 2015.

Mr. Rodriguez said that once the FEMA Administrator received the *Interim 2015 TMAC Annual Report* and the *Interim Future Conditions Report*, FEMA began evaluating and discussing the recommendations. He explained that FEMA convened a full-day work session with representatives from all of the offices within FIMA to explore the opportunities, impacts, and next steps to start moving forward with the recommendations. The work session was the start of the cross-FIMA collaborative approach regarding the TMAC's recommendations. Mr. Rodriguez said that while many of the recommendations are specific to mapping, there are several transformational recommendations where mapping, insurance, and floodplain management will need to work closely together. He added that FEMA fundamentally agrees with the TMAC's recommendations in both reports and is working on plans to start implementing them.

Mr. Rodriguez said that FEMA is putting a structure in place that will allow it to systematically evaluate, manage, and track the implementation of the TMAC's recommendations on an ongoing basis. This structure will allow FEMA the ability to provide progress reports to the TMAC, Congress, and other stakeholders. He explained that his division will be responsible for the coordination and oversight of the recommendations and that each recommendation will be assigned to a FIMA Division Director. Mr. Rodriguez explained that the Risk Mapping, Assessment and Planning (MAP) Executive Team met to review the recommendations and assign them to the appropriate divisions. He added that the Division Directors are beginning to assign recommendations to their branches. Mr. Rodriguez said that FEMA

must report to the Senate Committee on Banking, Housing, and Urban Affairs, the House Committee on Financial Services, and the Office of Management and Budget (OMB) on the TMAC's recommendations, the actions taken to address them, and any recommendations deferred or not acted upon. He explained that FEMA intends to complete its response by June 2016 so that Congressional staff and OMB have visibility on the short and long-term implementation plans as they consider fiscal year (FY) 2017 appropriations and National Flood Insurance Program (NFIP) reauthorization.

During the week of February 15, 2016, Mr. Rodriguez said that FEMA will be convening a three day Risk Management Directorate Workshop with the regional and headquarters staff. Participants will spend a full day discussing the TMAC recommendations, strategic planning, and program transformation. According to Mr. Rodriguez, workshop participants will focus on three of the most complex, transformative, and exciting challenges, including: (1) structure specific risk profiles; (2) incorporate future conditions and exploring climate impact methodologies; and (3) communicate risk and uncertainty. Mr. Rodriguez said that the mapping program will take action to implement the recommendations to the extent possible through policy and guidance, starting with the November 2016 Guidance and Standards maintenance cycle. Regarding FY16, he added that FEMA is looking at investment opportunities, including advancing and assessing TMAC recommendations. FEMA is also looking at making additional investments in three areas, including: (1) flood hazard information that is still unmodernized and on paper; (2) Light Detection and Ranging (LiDAR) information; and (3) additional assessments of flood hazard miles from the Coordinated Needs Management Strategy (CNMS) process.

Mr. Rodriguez said that as FEMA prepares for the NFIP reauthorization in 2017, it needs to align the mapping program enhancements, the NFIP Customer Experience (CX) roadmap, and the NFIP Draft Affordability Framework. He said that there are three major items that FIMA and Risk Management will focus on in 2016, including: (1) evaluating, coming up with implementation plans, and moving forward with executing the TMAC recommendations from the *2015 TMAC Annual Report* and *2015 Future Conditions Risk Assessment and Modeling* report; (2) positioning the FEMA Administrator to be able to satisfy HFIAA Section 17; and (3) transforming the NFIP, including several initiatives aimed at improving and transforming the customer experience for policyholders, and preparing for reauthorization.

Mr. Rodriguez asked the TMAC to provide its review of the mapping program to the FEMA Administrator for his consideration as he contemplates certification to Congress. He explained that FEMA's current Flood Mapping Program Description is not its response to the TMAC recommendations. Mr. Rodriguez also explained that the Administrator believes that the foundation for transforming the mapping program is consistent national elevation data, and while he was pleased that this was expressed in the recommendations, he encouraged the TMAC to emphasize this point more distinctly in future recommendations. Mr. Mark DeMulder, TMAC member, said that there are two challenges regarding national elevation data, including: (1) the need for better intergovernmental collaboration; and (2) funding. He added that the TMAC can stress that this is an investment that must be made, but it is a multiyear and multiagency effort.

Mr. Chris Jones, TMAC member, asked if the program can be certified as credible given that the TMAC recommends future conditions mapping and it is not part of the current program. Mr. Rodriguez responded that the Administrator needs to weigh this and that he must focus on what is asked in the legislation. Mr. Dorman said that the TMAC must show the Administrator certain characteristics and capabilities it would want in order to say that the program can be certified. He reminded the Council that they are not determining if the program is credible, but rather providing the Administrator advice so that he can make a determination.

### **2016 TMAC Reports/Deliverables/Structure**

Mr. Dorman discussed the 2016 implementation timeline. Mr. Rodriguez noted that FEMA has crafted its justification for increased funding in the 2017 budget by stressing its commitment to advancing TMAC recommendations. Ms. Boyer explained that the July date regarding the Administrator's certification of the program is not a definite date and may be altered.

Mr. Dorman reviewed the TMAC member roles and responsibilities. He explained that:

- Every member will be a lead author for a topic or section in either the *2016 TMAC Annual Report* or the *2016 TMAC Technical Review Report*.
- Each member can only participate in one subcommittee in the role of “authoring”.
- Every member will be able to review both documents.
- Authors will brief the Council on their progress at each TMAC meeting.
- The Council will have the opportunity to review and provide comments to authors at, and between, each TMAC meeting.
- Report chairs will be responsible for report process management and coordination.

Mr. Dorman explained that the Council will have to determine in what areas SMEs will be needed. In addition, there will be a form to complete regarding the various topics. He added that the authors will be responsible for calling meetings for their report sections. Mr. Dorman also reviewed the report assignments, noting that they could be revised as necessary. Ms. Boyer explained that Mr. Tim Murphy, SME, will be replacing Mr. Gale Fraser, TMAC member. Until the appointment is confirmed, Mr. Murphy will be acting as a SME. Additionally, Mr. Dorman said that the TMAC will likely need to leverage a tribal SME.

### **Overview of the Mapping Program Description**

Mr. Bascom was invited to provide an overview of the Flood Mapping Program Description. He reminded participants that in January 2016, FEMA provided the TMAC with the pre-decisional and deliberative draft of the Flood Mapping Program Description. Mr. Bascom said that the updated version of the program description is still going through the formal concurrence process. He asked the TMAC to keep in mind the language from Section 216 of BW-12 and Section 17 of HFIAA as they review the description. Section 216 of BW-12 calls for the establishment of an ongoing national flood mapping program. Section 17 of HFIAA requires the FEMA Administrator to certify a flood mapping program, after TMAC review, which results in technically credible flood hazard data in areas where Flood Insurance Rate Maps (FIRMs) are prepared and updated.

Mr. Bascom said that the FEMA Administrator will prepare to certify the flood mapping program to Congress. He added that the TMAC’s review of the program will help inform the Administrator’s certification and will be submitted to Congress as part of the certification package. Mr. Bascom said that FEMA created the program description to enable an efficient and targeted review of the program. FEMA hopes that this document will provide clarity on the progress that FEMA has made in implementing legislative requirements for the mapping program, including pending Guidance and Standards updates scheduled for release in May 2016.

According to Mr. Bascom, the program description focuses predominately on the flood hazard mapping and risk analysis aspects for the TMAC to review within the context of the HFIAA requirement for a flood mapping program for the NFIP. He said that it is not intended to fully address the other awareness, mitigation planning, and mitigation action facets that are also part of Risk MAP. While the document acknowledges receipt of, and agreement with, the TMAC’s recommendations, it is not FEMA’s formal response to them.

Mr. Bascom said that FEMA believes the current program provides a technically credible foundation and it is designed to evolve efficiently. FEMA also believes that the Administrator’s certification of the program is imperative to the NFIP reauthorization efforts and to obtain the resources and support necessary for the mapping program to pursue the transformational changes the TMAC recommended. Mr. Bascom said that the earlier the TMAC can provide the *2016 TMAC Technical Review Report*, the better it can position the current Administrator to move forward with certification prior to the end of the Administration.

Mr. Bascom explained that while the TMAC develops its *2016 TMAC Technical Review Report*, FEMA will be developing its response to the *2015 TMAC Annual Report* and the *2015 TMAC Future Conditions Risk Assessment and Modeling Report*. As FEMA continues to evaluate and prioritize the implementation of the TMAC's recommendations, it will identify the recommendations that can be addressed through Guidelines and Standards. All those recommendations that can be fully addressed this way will be identified by May 2016 and will be placed in the Guidelines and Standards process for release during the November 2016 cycle. FEMA will provide the TMAC with the May 2016 Guidelines and Standards document.

Ms. Boyer explained that the intent of the program description is to provide a central summary of the current program. Mr. Rodriguez said that he will distribute the updated program description to TMAC members. In summary, Mr. Bascom said that:

- FEMA's flood mapping program provides a technically credible foundation to build upon as FEMA makes continual progress in addressing TMAC recommendations and the remaining legislative requirements that tie closely to them.
- The *2016 TMAC Technical Review Report* will be a tool to help the Administrator's decision to provide a certification to Congress mid-2016, in advance of NFIP reauthorization efforts.
- FEMA believes that defining the mapping program as a technically credible foundation is critical to obtain the resources and support necessary to achieve the transformational changes recommended by the TMAC.
- FEMA will continue to participate in TMAC discussions and looks forward to additional guidance and recommendations in 2016.

Mr. Bascom concluded his remarks by stating that FEMA looks forward to continued interaction and engagement with the TMAC and thanking the Council for their work to review the program.

### **2016 Technical Review Report Discussion**

Mr. Scott Edelman, TMAC member, reviewed Section 17 of HFIAA. Ms. Wendy Lathrop, TMAC Member, noted that the legislation says that "the Administrator shall implement a flood mapping program..." and said that the language makes it appear as though a new program is being stood up. She continued that there is currently a mapping program and asked if the TMAC's review must make it seem like the program is something new and improved. Mr. Rodriguez responded that it is one mapping program and that FEMA is adjusting the program to comply with BW-12. He added that it is an evolving program and the TMAC should look at the evolution of the current program

Ms. Leslie Durham, TMAC member, asked if there was a desire to consider developing a requirement that certain funding be set aside for flood hazard identification or flood mapping. She also asked if the TMAC was going to prioritize FIRMs versus non-regulatory products and other priorities that FEMA has (e.g., risk assessment, Community Engagement Risk Communications [CERC], etc.) Ms. Durham also questioned if the *2016 TMAC Technical Review Report* or the *2016 TMAC Annual Report* include prioritization information/suggestions? Mr. Rodriguez said that it is not about the funding and Mr. Edelman said that the report should not include anything on the cost of implementation.

Mr. Edelman continued to discuss the legislation and said that the TMAC must define several phrases, including: certification; flood mapping program; technically credible flood hazard data; and all areas where FIRMs are prepared or updated. For certification, the Council said that they could utilize Congress' intent for the program as defined in BW-12 and HFIAA. The advantages of using this definition is that it sets boundaries for TMAC, provides clear justification to the reader for why a TMAC comment is made, and provides a framework for the *2016 TMAC Technical Review Report*. Ms. Lynda Pilgrim, FEMA, reminded participants that only FEMA can determine its statutory mandate. Ms. Boyer said that FEMA can provide the TMAC with a more formal tasking memo to help guide the Council. Participants agreed that the TMAC does not have to define "certification"; however, Ms. Sally McConkey, TMAC member, suggested that Ms. Boyer could ask the Administrator if there is something in particular he is looking for to help with his

decision. Mr. Rodriguez noted that the Flood Mapping Program Description provides information on what FEMA considers technically credible.

Regarding the definition of flood mapping, participants agreed to limit certification to regulatory products (e.g., map profiles, narrative, and associated data). Ms. McConkey said that rather than examining every standard and guideline, the TMAC should look at the process for maintaining current standards and guidelines. Ms. Nancy Blyler, TMAC member, agreed but suggested the TMAC identify any gaps in the process. Mr. Rodriguez said that FEMA will focus on the current program to determine if it is credible.

Discussing the potential definition of technically credible flood hazard data, Mr. Edelman said that the TMAC should address the following issues: uncertainty of results; maturity of mapped floodplain from no study, to approximate study, to detailed study; un-modeled versus modeled floodplains; repeatable process to produce results; ability to change when science, technology, or policy changes; topographic source of the maps; and best value. Ms. Carrie Grassi, TMAC member, suggested that the Council also address quality assurance/quality control (QA/QC) and transparency of the decision-making that happens at each stage of the process. Ms. McConkey agreed and asked if the TMAC should discuss where each level of accuracy is appropriate. Mr. Dorman said that the TMAC could identify a metric to consider where each level of detail is appropriate; however, he said that this information may be better suited for the *2016 TMAC Annual Report*.

Ms. Christine Shirley, TMAC member, said that the TMAC should also evaluate how modeled floodplains are displayed. Mr. David Mallory, TMAC member, asked what is good enough to set a good flood insurance rate. He also said that resources are important and questioned if FEMA was building enough capacity in stakeholders to support the mapping program as it evolves. Mr. Robert Mason, TMAC member, said that the TMAC may want to consider due process and transparency and the ability for locals to ask about data. Ms. Shirley said that due process only works if it is timely (i.e., getting maps out in a 10 year period would not be credible). Mr. Dorman said that it is important to look at non-regulatory products and discuss the depiction of risk in general. Mr. Rodriguez said that FEMA would benefit from information regarding where the process is not working.

Next, participants discussed the potential definition of “all areas where flood insurance rate maps are prepared or updated”. Mr. Edelman explained that the TMAC should not look at products produced in the past. Ms. Lathrop said that a new map date includes the perception that the entire panel has been updated and that it might be useful to attach the date of the analysis on the products. She questioned if the entire panel would need to comply. Mr. DeMulder said that feature-specific metadata may assist with this issue. Mr. Rodriguez said that this may be a discussion for the *2016 TMAC Annual Report*. Mr. Edelman said that the TMAC will not have time to go as in-depth with the *2016 TMAC Technical Review Report* as the *2016 TMAC Annual Report* and he suggested that the *2016 TMAC Technical Review Report* include text that “all populated areas” should be clearly defined. In a future annual reports, the TMAC could recommend that FEMA define the term. Mr. Dorman said that many things the TMAC reviews will depend on funding and said that the Council may need to help FEMA by prioritizing funding needs so that they have the resources to implement the recommendations.

Council members discussed the definitions of relevant terms, phrases, and concepts. Discussing the definition of “one mapping program”, participants said that while the mapping program has evolved, it would likely be best to look at it as one program. Ms. Durham said that the TMAC should also address items such as storm surge. Mr. Rodriguez said that there are similarities between Federal programs but there are different users/uses. He added that if there is another agency that has this data, FEMA should use it to the extent that it can be leveraged. Ms. Blyler said that the TMAC must develop an idea of how data fits together. For credibility, the public is going to compare FIRMs with other agency products and therefore it may be useful to have information regarding communications. Mr. Rodriguez said that FEMA uses the *National Flood Insurance Act* definition of the term “identification of flood hazards”. Participants stressed the importance of using the word “flood” when discussing a national mapping program.

Discussing the phrase “why the mapping program can never be finished”, Mr. Edelman said that science changes, tools change, population shifts and growth occurs, and the Nation cannot afford to treat all

floodplains the same. Ms. Lathrop said that the TMAC should address the different uses of flood hazard maps. She said that data has many uses for different communities of users and that it is not just about insurance.

Next, participants discussed the definition of quality. Mr. DeMulder said that the quality of topographic maps has changed over the years. He explained that while people appreciate the new standard, there is a certain comfort in the old pass/fail scenario. Ms. McConkey said that the TMAC should focus on the flood hazard identification. Ms. Grassi said that errors on maps can cause people to lose trust in FEMA. Ms. Durham stated that the TMAC may wish to discuss accuracy rather than quality and added that there is an expectation of accuracy and precision on the maps. Mr. Rodriguez said that it may be about QA/QC process and identifying the gaps. He explained that FEMA is pushed to issue maps as soon as possible and asked how the agency can strike a balance between speed and quality.

Discussing how quality is measured, Mr. Rodriguez said that New, Validated or Updated Engineering data (NVUE) is being expanded to include coastal. Mr. Edelman suggested that the Council receive a brief overview of CNMS from an SME to obtain a better understanding about how NVUE is measured. Mr. Jones asked about quality and credibility based on the user experience. Mr. Rodriguez said that customer experience (CX) initiative may speak to this, and noted that when FEMA pushes out Letters of Map Revisions (LOMRs) there is a public notification component, and sometimes people are unhappy that they were removed from the flood zone. Ms. Durham said that when looking at the quality of flood maps, there are many instances where people should have done LOMRs. She asked if there is a way to reinforce that requirement in the NFIP. Ms. McConkey said that it would be helpful to look at the process by which NVUE is updated. Participants agreed to include a short section to describe the relationship of the *2016 TMAC Technical Review Report* with other TMAC reports. Mr. Edelman also said that the *2016 TMAC Technical Review Report* will not comment on the cost of implementation and that this topic could be covered in a future annual report.

Discussing the definition of timeliness, Mr. Steve Ferryman, TMAC member, said that the process timeline could be sped up as long as it includes due process. There must be an opportunity for the community to comment and provide input. Ms. Shirley said that there should be allocated funds and a slush fund for unexpected map submissions that may overlap a budget cycle. Mr. Jones asked how much of the process is taken up by review periods. Mr. Rodriguez said that a faster study process may lead to the perception of a lack of transparency. He noted that transparency takes time and communities must have adequate time to review the maps. Ms. Grassi said that it has been valuable to check in along the way and discuss things before the maps become preliminary. Mr. Edelman also remarked that the process could be different depending on the area being studied.

Mr. Edelman reviewed the potential Review Report schedule and the potential report outline, noting that the report will likely be approximately 200 pages. Next, participants reviewed the legislative requirements and their applicability to the *2016 TMAC Technical Review Report*.

**Legislative Requirement 1:** *Reviewing, updating, and maintaining maps The Administrator, in coordination with the Technical Mapping Advisory Council established under section 4101a of this title, shall establish an ongoing program under which the Administrator shall review, update, and maintain National Flood Insurance Program rate maps in accordance with this section.*

Participants agreed that this requirement is complete.

**Legislative Requirement 2:** *(b) Mapping (1) In general. In carrying out the program established under subsection (a), the Administrator shall- (A) identify, review, update, maintain, and publish National Flood Insurance Program rate maps with respect to: (i) all populated areas and areas of possible population growth located within the 100-year floodplain; (ii) all populated areas and areas of possible population growth located within the 500-year floodplain.*

Mr. Edelman commented that the TMAC recommended a rolling five-year plan regarding the modernization of all maps in the inventory in the *2015 TMAC Annual Report*. Mr. Rodriguez said that

the TMAC may identify gaps and areas of improvement that may be included in a future annual report.

**Legislative Requirement 3:** *(ii) areas of residual risk, including areas that are protected by levees, dams, and other flood control structures; (iv) areas that could be inundated as a result of the failure of a levee, dam, or other flood control structure.*

Mr. Ferryman asked about the regulatory changes needed to address this requirement on the FIRMs. Mr. Bascom noted that the reason this requirement is partially addressed is because of non-regulatory products and FEMA's levee process. Additionally, other agencies may have the purview on certain areas and FEMA must collaborate with these groups. He said that SMEs could provide additional information to the TMAC regarding the process for developing dam-specific products. Mr. Jones asked what is meant by "flood control structures". Mr. Bascom said that FEMA is trying to provide information regarding that term and is asking communities what they consider to be important flood control structures. Discussing agency collaboration, Ms. McConkey said that they may be able to utilize the National Levee Database (NLD). Mr. Bascom said that FEMA has been working with the NLD to develop parameters; however, these may or may not be considered credible for communicating risk. Ms. McConkey responded that it would be useful to understand the mid-term levee database and NLD coordination. Mr. Edelman said that the TMAC may wish to have some Webcasts on this requirement.

**Legislative Requirement 4:** *(v) areas that are protected by non-structural flood mitigation features*

Mr. Jones said that this requirement is related to legislative requirement 3. Ms. Durham noted that the TMAC needs a definition for non-structural flood mitigation issues.

**Legislative Requirement 5:** *(vi) the level of protection provided by flood control structures and by non-structural flood mitigation features.*

Participants noted that the TMAC may want to add something related to this requirement into the FIRMS; however, it will not need a regulatory change.

**Legislative Requirement 6:** *(B) establish or update flood-risk zone data in all such areas, and make estimates with respect to the rates of probably flood caused loss for the various flood risk zones for each such area.*

Ms. McConkey said that she thought this was about creating more/new/additional zones for the specialized areas. Mr. Edelman said that it seems to support the structure-based risk assessment. Mr. Ferryman questioned why legislation was needed if it is related to the entire United States.

**Legislative Requirement 7:** *(C) use, in identifying, reviewing, updating, maintaining, or publishing any National Flood Insurance Program rate map required under this section or under the National Flood Insurance Act of 1968 (42 U.S. C. 4011 et seq.) the most accurate topography and elevation data available.*

Ms. Durham informed participants that FEMA has topographic standards for new studies. She questioned if entire maps will be updated with the new topography. Mr. Richard Butgereit, TMAC member, said that FEMA is not updating FIRMs with LiDAR everywhere and said that this requirement is not addressed. He said that FEMA should not make maps in areas without LiDAR and high resolution digital elevation models..

**Legislative Requirement 8:** *Each map updated under this section shall – (A) assess the accuracy of current ground elevation data used for hydrological and hydraulic modeling of flooding sources and mapping of the flood hazard and wherever necessary acquire new ground elevation data utilizing the most up-to-date geospatial technologies in accordance with guidelines and specifications of the Federal Emergency Management Agency.*

This legislative requirement is addressed. The TMAC had no further comments on this recommendation.

**Legislative Requirement 9:** *(B) develop National Flood Insurance Program flood data on a watershed basis – (i) to provide the most technically effective and efficient studies and hydrologic and hydraulic modeling; and ii to eliminate, to the maximum extent possible, discrepancies in base flood elevations between adjacent political subdivisions*

Mr. Rodriguez said that FEMA considers this requirement addressed because of the Hydrologic Unit Code (HUC)-8 standard. Mr. Ferryman said that a Risk MAP project is done on a watershed basis; however, maps are not watershed-wide. Mr. Rodriguez said that the policy speaks to doing the analysis on a watershed scale but mapping might be done independently or on different schedules. Mr. Ferryman responded that it makes sense to do the modeling on a watershed basis; however, maps cannot be updated all at once due to funding. Mr. Dorman said that there are several reasons why HUC-8 does not work. Mr. Edelman said that the TMAC could include language in its report regarding the watershed level and crosswalk it with the information from the *2015 TMAC Annual Report*.

### **Public Comment Period**

Ms. Boyer announced that, per FACA, members of the public are provided the opportunity to provide oral and written comments on the issues to be considered by the TMAC. She requested that speakers limit their public comments to no more than three minutes and said that the public comment period will not exceed 30 minutes. While the public was offered the opportunity to speak, no comments were received.

### **2016 Technical Review Report Discussion**

**Legislative Requirement 10:** *In updating maps under this section, the Administrator shall include- (a) any relevant information on coastal inundation from (i) an applicable inundation map of the Corps of Engineers; and (ii) data of the National Oceanic and Atmospheric Administration relating to storm surge modeling.*

Participants discussed if the program could be considered technically credible if FEMA does not include this type of relevant information. Mr. Jones said that it could likely not be considered technically credible. Mr. Bascom said that this requirement may never be fully addressed and Mr. Rodriguez suggested that the TMAC invite an SME to discuss this topic.

**Legislative Requirement 11:** *(B) any relevant information of the United States Geological survey on stream flows, watershed characteristics, and topography that is useful in the identification of flood hazard areas, as determined by the Administrator.*

Ms. Durham said that FEMA has been meeting this requirement and recommended that the Agency acknowledge that it is part of its flood mapping program. Ms. McConkey added that a quality check would be useful in the process. Participants agreed that this requirement is addressed by FEMA.

**Legislative Requirement 12:** *(C) any relevant information on land subsidence, coastal erosion areas, changing lake levels, and other flood-related hazards.*

Mr. Jones asked if FEMA needs additional regulatory change in order to have the authority to map future conditions. Mr. Bascom said that it would depend on how the Agency chooses to implement the requirement. He said that regulatory change would be required if FEMA decides a new zone is needed. Mr. Crowell said that FEMA would need regulatory change because E Zones are tied to current conditions and FEMA must clarify definitions in the regulations.

**Legislative Requirement 13:** *(D) any relevant information or data of the National Oceanic and Atmospheric Administration and the United States Geological Survey relating to the best available science regarding future changes in sea levels, precipitation, and intensity of hurricanes.*

Mr. Bascom said that this requirement would require a regulatory change if FEMA were to identify it on the FIRMs; however, this could be partially addressed without a regulatory change. Mr. Ferryman recommended additional discussion regarding the ability to turn layers on and off of the FIRMs when they are online.

**Legislative Requirement 14:** *(E) any other relevant information as may be recommended by the Technical Mapping Advisory Committee.*

Mr. Edelman said that this requirement includes a list of the TMAC's recommendations that should be included in a technically credible program.

**Legislative Requirement 15:** *In updating and maintaining maps under this section, the Administrator shall- (1) establish standards to – (A) ensure that maps are adequate for – (i) flood risk determinations*

The TMAC had no comment on this requirement.

**Legislative Requirement 16:** *(ii) use by State and local government in managing development to reduce the risk of flooding*

Ms. Shirley said this is related to the display platform, which may differ from the published FIRM and cause problems. Ms. McConkey said that the TMAC could discuss the community of users and how the end uses and users matter. She added that FEMA should determine how to serve these users.

**Legislative Requirement 17:** *(B) facilitate identification and use of consistent methods of data collection and analysis by the Administrator in conjunction with State and local governments, in developing maps for communities with similar flood risks, as determined by the Administrator.*

The TMAC had no comment on this requirement.

**Legislative Requirement 18:** *(2) publish maps in a format that is – (A) digital geospatial data compliant; (B) compliant with the open publishing and data exchange standards established by the Open Geospatial Consortium; and (C) aligned with official data defined by the National Geodetic Survey.*

Ms. Juliana Blackwell, TMAC member, said that this requirement involves data. Mr. Edelman noted that he is not aware of any studies that are not using the North American Vertical Datum of 1988 (NAVD 88). Ms. Blackwell also said that prior to the 2022 datum update, pilot projects are needed so that they can be updated seamlessly and quickly. Mr. Edelman concurred and recommended a pilot project in the Pacific Northwest. Mr. Butgereit said that the national flood hazard layer may not actually meet the requirement and said that the TMAC could make recommendations regarding this requirement.

**Legislative Requirement 19:** *(1) in general the Administrator shall – (A) before commencement of any mapping or map updating process, notify each community affected of the model or models that the Administrator plans to use in such process and provide an explanation of why such model or models are appropriate.*

Mr. Bascom confirmed that FEMA will use the United States Army Corps of Engineers (USACE) Hydrologic Engineering Center's River Analysis System (HEC-RAS) model (June 2010). Mr. Jones noted that FEMA's short-term response mentions "engineering models"; however, there are several other types of models. Mr. Rodriguez agreed and noted that the intent is to reflect all models. The TMAC agreed to have an SME discuss this requirement in more detail.

**Legislative Requirement 20:** *(B) provide each community affected a 30-day period beginning upon notification under subparagraph (A) to consult with the Administrator regarding the appropriateness, with respect to such community, of the mapping model or models to be used; provided that the consultation by a community pursuant to this subparagraph shall not waive or otherwise affect any right on the community to appeal any flood hazard determinations.*

With regards to the near-term implementation actions, Mr. Jones recommended removing the word “engineering”. The TMAC had no other comments on this requirement.

**Legislative Requirement 21:** *(C) upon completion of the first Independent Data Submission, transmit a copy of such Submission to the affected community, provide the affected community a 30-day period during which the community may provide data to (the) Administrator that can be used to supplement or modify the existing data and incorporate any data that is consistent with prevailing engineering principles.*

Mr. Rodriguez said that this requirement only applies to coastal. Ms. Shirley noted that most communities do not know what to do with data. Mr. Rodriguez added that FEMA is trying to find a way to address this requirement within the current process. He noted that FEMA must comply with this requirement even if the TMAC disagrees with it. Mr. Edelman said that this discussion may be placed in the *2016 TMAC Annual Report*.

**Legislative Requirement 22:** *(D) work with States, local communities, and property owners to identify non-structural mitigation features (areas and features described in subsection (B)(1)(A)(V))*

The TMAC had no comments on this requirement.

**Legislative Requirement 23:** *(E) work to enhance communication and outreach to States, local communities, and property owners about the effects – (i) of any potential changes to the National Flood Insurance Program rate maps that may result from the mapping program required under this section; and (ii) that any such changes may have on flood insurance purchase requirements; (F) engage with local communities to enhance communication and outreach to the residents of such communities, including tenants (with regards to contents insurance), on the matters described under subparagraph (E).*

Mr. Rodriguez said that the push for more engagement is partially because of criticism of FEMA’s Flood Map Modernization. If FEMA does not get the outreach and communication right, there is a perception that there is a lack of technical credibility. Ms. Lathrop said that perception is a huge part of what people think is credible and recommended that the TMAC also discuss this in the *2016 TMAC Annual Report*. Mr. Rodriguez noted that additional information regarding the timing of this will be forthcoming.

### **Adjournment**

Ms. Boyer thanked participants for their discussion and announced that the TMAC meeting will reconvene at 8:00 a.m. on February 11, 2016.

## **Day 2: February 11, 2016**

### **Roll Call/ Call to Order**

Ms. Boyer opened the second day of the TMAC meeting by reintroducing the ADFO, directing any logistics questions to support staff at the hospitality desk, and announcing that the public comment period will begin promptly at 3:00 PM EST. Ms. Boyer performed a roll call and reminded members to state their name before making a comment. She then turned the meeting over to Mr. Dorman.

After reviewing the agenda, Mr. Dorman turned the meeting over to Mr. Edelman to continue discussing the *2016 TMAC Technical Review Report*.

## **2016 Technical Review Report Discussion**

Mr. Edelman led the members in a continued discussion of the legislative requirements included in FEMA's Flood Mapping Program Description.

**Legislative Requirement 24:** *(G) not less than 30 days before issuance of any preliminary map, notify the Senators for each State affected and each Member of the House of Representatives for each congressional district affected by the preliminary map in writing of—(i) the estimated schedule for— (I) community meetings regarding the preliminary map; (II) publication of notices regarding the preliminary map in local newspapers; and (III) the commencement of the appeals process regarding the map;*

Ms. Durham noted that in the past emphasis was placed on the communities, but now it is placed on the mapping partners. Mr. Rodriguez responded that this section refers to Congressional notifications.

**Legislative Requirement 25:** *(ii) the estimated number of homes and businesses that will be affected by changes contained in the preliminary map, including how many structures will be that were not previously located in an area having special flood hazards will be located within such an area under the preliminary map; and,*

The Council determined that this requirement does not need to be addressed for technical credibility. Mr. Rodriguez responded that FEMA lacks the information they need to accomplish this requirement. Ms. Cheryl Small, TMAC member, commented that this requirement raises an important issue because there needs to be understanding ahead of time, outside of community meetings, that people will be impacted by a map. She suggested that this topic should be covered in the communications section of the 2016 TMAC Annual Report. Ms. Small stated that users need to be alerted before the change happens, and not when it is effective on the map. Within the discussion of technical credibility, the TMAC could discuss the science and engineering involved, and have another section on the acceptance of advanced notice.

**Legislative Requirement 26:** *(H) upon the issuance of any proposed map and any notice of an opportunity to make an appeal relating to the proposed map, notify the Senators for each State affected and each Member of the House of Representatives for each congressional district affected by the proposed map of any action taken by the Administrator with respect to the proposed map or an appeal relating to the proposed map.*

Mr. Jones asked what the legislation means by "proposed map". Mr. Rodriguez clarified that it is referring to a preliminary map; it is a change that is coming, but may be referred to as a draft map, work map, or preliminary map. Mr. Edelman added that an official appeal can only occur after a preliminary map is issued.

**Legislative Requirement 27:** *(2) Required activities. The communication and outreach activities required under paragraph (1) shall include—(A) notifying property owners when their properties become included in, or when they are excluded from, an area covered by the mandatory flood insurance purchase requirement under section 4012a of this title;*

Ms. Small asked which party is required to give notifications in this case. She noted that if this is subject to mandatory purchase, then those communications are already happening today because the lender notifies whoever is impacted. If this refers to a second party, then this needs to be thought through so that homeowners do not receive multiple communications. Mr. Rodriguez said that the law is directing FEMA to notify the property owners. Ms. Grassi replied that this seems to pertain to notifying property owners before the map is final, whereas the lender's letter is sent after the map becomes effective, and this type of notification would give notice to what future financial requirements might be. Mr. Rodriguez explained that this is not being systematically done across the Nation. Mr. Dorman said that the TMAC should address the communications to renters. Ms. Durham noted

there was an earlier legislative requirement regarding the communication of insurance availability and requirements and said that these pieces need to be looked at together and that TMAC has an opportunity to help combine and consolidate those requirements for FEMA and suggest how to address them.

**Legislative Requirement 28:** *(B) educating property owners regarding the flood risk and reduction of this risk in their community, including the continued flood risks to areas that are no longer subject to the flood insurance mandatory purchase requirement;*

Ms. Shirley said that there may be an opportunity to do a CTP arrangement with communities that are getting new maps so that they can receive the education and implementation with FEMA assistance. Many small towns have a hard time fully participating in education and outreach activities. It would be good if there was a partnership involved in order to help offset the cost. Mr. Howard Kunreuther, TMAC member, stated that it is important to have the communities involved in this type of communication. Mr. Dorman noted that risk is not interchangeable with hazard. The impacts of the hazard are inherent in the definition of a risk. This requirement may be addressed for the hazard, but not for the risk.

Ms. McConkey suggested that the TMAC address this requirement in the 2016 TMAC Annual Report. The TMAC could do a deep dive into the instructions that are going out to CERC contractors and gain better understanding and assurance that the communications are being done correctly. She noted that people tend to listen better when the communication comes through local officials. The 2016 TMAC Annual Report could look at the effectiveness of the communications strategy in regards to this requirement.

**Legislative Requirement 29:** *(C) educating property owners regarding the benefits and costs of maintaining or acquiring flood insurance, including, where applicable, lower-cost preferred risk policies under the National Flood Insurance Act of 1968 (42 U.S.C. 4011 et seq.) for such properties and the contents of such properties;*

Members agreed that this requirement is not related to technical credibility.

**Legislative Requirement 30:** *(D) educating property owners about flood map revisions and the process available to such owners to appeal proposed changes in flood elevations through their community, including by notifying local radio and television stations; and*

Members agreed that this requirement is a communications issue, and related to technical credibility.

**Legislative Requirement 31:** *(E) encouraging property owners to maintain or acquire flood insurance coverage.*

Members agreed that this requirement is not related to technical credibility.

**Legislative Requirement 32:** *(e) Community remapping request. Upon the adoption by the Administrator of any recommendation by the Technical Mapping Advisory Council for reviewing, updating, or maintaining National Flood Insurance Program rate maps in accordance with this section, a community that believes that its flood insurance rates in effect prior to adoption would be affected by the adoption of such recommendation may submit a request for an update of its rate maps, which may be considered at the Administrator's sole discretion. The Administrator shall establish a protocol for the evaluation of such community map update requests.*

Members agreed that this requirement is not related to technical credibility.

**Legislative Requirement 33:** *Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12) §215 Technical Mapping Advisory Council (TMAC)*

Mr. Edelman noted that the TMAC will help assist in the technical credibility of the mapping program and that the status is accurately reflected.

**Legislative Requirement 34:** *BW-12 §217 Scope of Appeals*

Mr. Rodriguez said that FEMA has addressed this legislative requirement. The members requested that FEMA provide a “strike-through” version of the original legislation that addresses this requirement.

**Legislative Requirement 35:** *BW-12 §218 Scientific Resolution Panel*

The TMAC had no comments on this requirement.

**Legislative Requirement 36:** *BW-12 §219 Removal of Limitation on State Contributions for Updating Flood Maps*

Members agreed that this requirement is not related to technical credibility.

**Legislative Requirement 37:** *BW-12 §220(a) and (b) Budget Crosscut and Interagency Coordination*

Mr. DeMulder commented that this requirement should be listed as “ongoing” as interagency coordination will never be complete. Members noted that this requirement would not significantly impact technical credibility; however, it might be useful to note the importance of cross-coordination. Ms. Lathrop said that the TMAC could make suggestions on coordinating with other agencies in the *2016 TMAC Annual Report*.

**Legislative Requirement 38:** *BW-12 §221 Interagency Coordination Study*

Mr. DeMulder noted that the TMAC made references to the study completed under this requirement in the *2015 TMAC Annual Report* so the TMAC might wish to show which recommendations from that report are still outstanding. Ms. McConkey responded that the *2016 TMAC Annual Report* has a section looking at what FEMA has done to address the 2015 TMAC recommendations.

**Legislative Requirement 39:** *BW-12 §226 Flood Protection Structure Accreditation Task Force*

Mr. Edelman said that the TMAC may want to include a few sentences on this requirement in its report. Mr. Jones said the Council should also address the issue of residual risk. The TMAC requested more information from FEMA and a copy of the Memorandum of Understanding (MOU) between FEMA and the USACE. Mr. Rodriguez responded that this requirement was about coordinating and aligning FEMA’s process with USACE’s process in terms of accreditation and that FEMA will accept a USACE accreditation under 65.10.

**Legislative Requirement 40:** *BW-12 §229 Local Data Requirement*

The Council decided to further this section. Ms. Durham noted that the TMAC could tie this requirement into another section that discusses using community data.

**Legislative Requirement 41:** *BW-12 §230 Eligibility for flood insurance for persons residing in communities that have made adequate progress on the reconstruction or improvement of a flood protection system.*

The Council determined that it should examine this requirement and may need more information from FEMA. Mr. Rodriguez noted that this requirement involves the construction of flood control systems.

**Legislative Requirement 42:** *BW-12 §231(e) Study and Report on Graduated Risk*

Mr. Jones commented that this requirement ties into the topics of in versus out and individual risk rating. The Council agreed that they need to look further into this requirement. The Council also requested a copy of all of the reports that are listed as complete in the Appendix. Mr. Rodriguez responded that this requirement was fulfilled by a National Academy of Sciences (NAS) study on levees and in the report there is an entire chapter dedicated to the graduation of risk. Ms. McConkey asked if the NAS report has any requirements and if the report is the basis for developing the required risk behind levees. She asked if there is a linkage there, because, if so, it is not obvious. Mr. Rodriguez responded that NAS recommends a specific approach that may be applicable to residual risk.

**Legislative Requirement 43:** *BW-12 §246 Reimbursement of Certain Expenses*

The Council determined that this requirement does not pertain to the *2016 TMAC Technical Review Report*. Mr. Rodriguez commented that there has been a lot of conversation around whether the reimbursement for appeals also applied to Letters of Map Amendments (LOMAs).

**Legislative Requirement 44:** *Homeowners Flood Insurance Act of 2014 §17 Flood Insurance Rate Map Certification*

The Council noted that the TMAC is addressing this requirement by developing the *2016 TMAC Technical Review Report*.

**Legislative Requirement 45:** *Homeowners Flood Insurance Act of 2014 §18 Funds to Reimburse Homeowners for Successful Map Appeals*

Members agreed that this requirement is not related to technical credibility.

**Legislative Requirement 46:** *Homeowners Flood Insurance Act of 2014 §19 Flood Protection Systems*

Mr. Rodriguez noted that this requirement is about changing the way requests for Zone AR/ Zone A99 and the approval of those requests are handled, so FEMA has to make a regulatory change. Part of the requirement involves the Federal and non-Federal money that goes into the flood control structure. Ms. Shirley noted that this requirement should be listed as "in-progress".

**Legislative Requirement 47:** *Homeowners Flood Insurance Act of 2014 §22 Exemption from Fees for Certain Map Change Requests*

Members agreed that this requirement is not related to technical credibility.

**Legislative Requirement 48:** *Homeowners Flood Insurance Act of 2014 §27 Mapping of Non- Structural Flood Mitigation Features*

Ms. Durham said that this requirement should be cross-walked with previous legislative requirements.

After finishing the review of the legislative requirements, members discussed outstanding questions regarding the *2016 TMAC Technical Review Report*. Mr. Edelman questioned how the TMAC can submit a review report for the Administrator to use as the basis of certification without defining certification. Ms. Blackwell said the TMAC must focus on the technical credibility aspect, and Mr. Edelman asked how to address the balance of perfect and good enough when looking at technical credibility. Ms. McConkey suggested the TMAC address the appropriate level of study and what is appropriate to apply to each level of study in the *2016 TMAC Technical Review Report*.

Mr. DeMulder reminded participants of their previous discussions relating to best value, adding that the flood mapping program being efficient implies best value. It is unreasonable to assume there will never be an error in the process, but it is difficult to determine the acceptable level of error. He suggested that the TMAC advise the Administrator to deliver a program that has both quality and value. Ms. Durham said

that separating out the level of detail of different studies would be difficult and suggested that the TMAC focus on the current. Ms. McConkey responded that she does not think the Council can avoid making sure the studies have adequate detail when talking about the technical credibility of the program. Mr. Rodriguez noted that FEMA leans heavily on engineers and surveyors and relies on them when FEMA gets questions about that data. The professional engineers are required to be part of the process. On a separate note, Mr. Rodriguez suggested the Council look at not only the work today as technically credible, but to take a look at the legacy work and highlight gaps that exist.

### **2016 Annual Report Discussion**

Mr. Dorman discussed the topic/need statements from the January 19, 2016, administrative TMAC meeting. He explained that a February 2016 survey requested the TMAC members rank the 11 consolidated topics/needs and identify others that they feel should be in the *2016 TMAC Annual Report*.

Ms. McConkey asked if the *2016 TMAC Annual Report* will review the *2015 TMAC Annual Report* topics, and Mr. Dorman responded that there is a section included in the outline. Ms. McConkey suggested that the members thoroughly review and validate the meaning of the topics to ensure that all of the members understand the intent of each topic. Several members suggested various topics that the Council may wish to consider adding into the report, including: elevation data, nonstructural and non-levee embankments, and stream gaging. Mr. Jones suggested further reducing the number of topics and Mr. Dorman suggested the members review the current topics before making consolidation decisions.

Mr. Dorman reviewed the priority ranking of the consolidated topic list, other identified topic statements for potential inclusion, and the current list of topics and associated lead and support authors. He suggested removing the topic regarding "National Flood Hazard and Risk Assessment Program: Long-Term Funding Strategies". Mr. Dorman then led the Council in a discussion of the proposed topics and scope.

#### **Proposed Topic 1: *Flood Risk: Standards and Guidelines for Data, Models, Analysis and Mapping Products***

Members had no additional comments regarding this topic.

#### **Proposed Topic 2: *Effective Communication of Hazards and Risk***

Ms. Shirley asked if this topic was already recommended in the *2015 TMAC Annual Report* and if the Council should defer this topic until after FEMA has implemented the related 2015 recommendation. Mr. Dorman responded that the 2015 recommendation was related to a survey, and not communication. Ms. Shirley responded that it could still be helpful to know the results of the survey first. Mr. Rodriguez noted that this topic should be discussed soon, noting that FEMA is currently conducting multiple surveys. He explained that FEMA recently released a customer experience survey and that there is also an annual survey through Risk MAP that aims to understand risk awareness. It would be valuable to FEMA for the TMAC to identify the core stakeholders. Mr. Dorman noted that he envisions this recommendation to include a list of the core stakeholders and the best type of communication for each of those groups and best practices for communicating hazard, risk, and uncertainty.

Mr. Ferryman asked why it is important to identify core stakeholders and whether it pertains to only mapping or other FEMA products. He asked if the TMAC should identify core stakeholders to ensure the products meet their needs. Ms. Lathrop responded that it would include both data and products. Ms. McConkey noted that identifying effective communication for both hazard and risk would be very difficult as the TMAC is not comprised of communications experts. She questioned if FEMA has any related ongoing efforts. She suggested that it could be helpful to utilize NAFSMA, ASFPM, or another association to send out a survey and begin this work. Ms. Blyler agreed with Ms. McConkey, noting that she does not think the TMAC could produce specific recommendations for this, but suggested looking at what other agencies are already doing in trying to communicate risk information to the

public. Members noted that a Federal organization cannot survey the public without undergoing a strenuous process.

Mr. Jones suggested the TMAC arrange the *2016 TMAC Annual Report* in a similar way to the categories outlined in the *2015 TMAC Annual Report*. Mr. Kunreuther noted that there is an opportunity to provide different types of messaging under this topic, and Mr. Ferryman suggested that the Council start by identifying core stakeholders and receiving briefings from SMEs. Mr. Rodriguez responded that the legislation regarding communication requirements points to States, communities, and property owners, and suggested that the TMAC narrow their focus to those stakeholders. Ms. Lathrop said that the stakeholder table Ms. Shirley created in the *2015 TMAC Annual Report* could be used as a starting point.

**Proposed Topic 3: *National 5-Year Flood Hazard and Risk Assessment Maintenance Methodology***

Ms. McConkey observed that this topic is directly linked to the credibility of FEMA's National Flood Mapping Program and suggested that there needs to be collaboration between the *2016 TMAC Technical Review Report* and the *2016 TMAC Annual Report* as it relates to this topic. Ms. Shirley said she is willing to author this topic if it is moved to the *2016 TMAC Technical Review Report*. Ms. McConkey suggested that as the Council begins to go through the *2016 TMAC Technical Review Report*, it might spawn recommendations for inclusion in the *2016 TMAC Annual Report*. Ms. Durham noted that this topic is very similar to recommendations two and three from the *2015 TMAC Annual Report* and asked if this topic will propose how to implement those recommendations. Members confirmed that is the intent of this topic.

**Proposed Topic 4: *Flood Hazard Identification and Risk Assessment: Study Process Management***

Mr. Dorman said this topic is the production process for producing flood hazard and flood risk data. This topic will include how the life cycle process interacts with the mapping information platform, how long it takes a map to be produced, and how the process can be streamlined. It will also define the life cycle process from discovery to issuance of the map and document the time requirements.

**Proposed Topic 5: *Database-derived, Digital Display Implementation Plan: Tasks, Process, Schedule***

Mr. Dorman reviewed this topic and noted that it will document the end-state recommended in the *2015 TMAC Annual Report*, proposing the next steps for how FEMA can move towards going digital.

**Proposed Topic 6: *Framework Data Management Plan***

Mr. Dorman reviewed the topic. TMAC members had additional no comments.

**Proposed Topic 7: *Transition Plan from 1% Annual Flood Determination to Structure-specific Flood Frequency Determination – Tasks, Process, Schedule***

Mr. Dorman reviewed the topic. TMAC members had additional no comments.

**Proposed Topic 8: *National Flood Hazard and Risk Assessment Program: Long-term Finding Strategies***

Mr. Dorman reviewed the topic. TMAC members had additional no comments.

**Proposed Topic 9: *Cooperating Technical Partners: Metrics, Processes and Delegation Methodology***

Ms. Durham noted that many of these topics are about how FEMA should consider implementing the *2015 TMAC Annual Report* recommendations and suggested that the Council acknowledge that in the report, naming the sections appropriately so that it clearly ties back to the original recommendations.

**Proposed Topic 10:** *Address Issues / Comments from Stakeholders from the 2015 TMAC Annual Report and the TMAC Future Conditions Risk Assessment and Modeling Report*

Mr. Dorman noted that this topic is a placeholder topic.

**Proposed Topic 11:** *Flood Risk Rated Insurance – Documented Dependencies with Flood Hazard and Risk Data, Models and Methodologies*

Mr. Dorman said that FEMA requested the TMAC add this topic.

Mr. Dorman provided an overview of the proposed report outline. He suggested that the TMAC identify steps to help FEMA implement five recommendations from the *2015 TMAC Annual Report*. Mr. Rodriguez noted that FEMA is initiating the process of assessing the level of effort and what it will mean for FEMA to implement the TMAC's recommendations. He noted that the decision framework for determining the value to the program and the time it would take to implement the recommendations would be just as important as the end vision. Mr. Kunreuther said that the Council should define criteria in selecting the top five recommendations.

Ms. McConkey said that the *2016 TMAC Annual Report* does not have to be in the same format as the *2015 TMAC Annual Report*. The 2016 Annual Report could discuss a criteria framework and prioritization of the 2015 recommendations and not include new recommendations. Mr. Lathrop agreed and said she believes the two most important topics to include are the gradient of risk and the idea of going digital; all other recommendations can fall under these two topics. She does not think that TMAC can prioritize the recommendations without assessing FEMA's current resources and then working with FEMA to develop specifications, standards, and approaches. Mr. Edelman reminded participants that each report is an opportunity to help define an actionable path forward for FEMA.

Mr. Rodriguez said that FEMA needs advice at the highest level on how to make the program better. The challenge for FEMA is the ability to implement and demonstrate progress. Implementing a change in policy may take a lot of time. At the highest level, FEMA is looking to the TMAC on how to improve the program. Ms. Grassi said that there appears to be an overlap in the 2015 and 2016 report topics. She suggested looking at the most transformational topics and helping FEMA advance those recommendations. The members reviewed the report production schedule, including how it intersects with the *2016 TMAC Technical Review Report* schedule, the timeline for production, and the 2016 meeting dates.

Mr. Dorman discussed the *2015 TMAC Annual Report* recommendations and the Council assessed each recommendation through the following questions:

- Is it on the 2016 priority list?
- Is it transformational?
- Does it increase credibility?
- Does it increase efficiency?
- Does it help to better meet stakeholder needs?

**Recommendation 1:** *FEMA should establish and implement a process to assess the present and anticipated flood hazard and flood risk products to meet the needs of the various users. As part of this process, FEMA should routinely;*

Ms. McConkey said that this recommendation increases efficiency as FEMA will not waste time and money producing products that stakeholders do not need. Ms. Durham responded that she is unsure the Council is in agreement regarding the definition of efficiency. Mr. Kunreuther responded that efficiency means the best allocation of resources. Ms. McConkey said she thought of efficiency in terms of cost efficiency, for example, flood risk products are not a good allocation of resources for communities that do not ask for the data. She also noted this recommendation underpins many of the other recommendations as it is not just about communicating the risk, but also about ensuring

products meet the needs of the users. Mr. Ferryman noted that this recommendation is not necessarily transformational.

**Recommendation 2:** *FEMA should develop a national 5-year flood hazard and risk assessment plan and prioritization process that aligns with program goals and metrics (See Recommendation No.3). This should incorporate a rolling 5-year plan to include the establishment and maintenance of new and existing studies and assessments in addition to a long-term plan to address the unmapped areas. Mapping and assessment priorities should be updated annually with input from stakeholders (e.g., MHIP). The plan should be published and available to stakeholders.*

The Council decided this recommendation meets all of the assessment criteria.

**Recommendation 3:** *FEMA should develop National Flood Hazard and Risk Assessment Program goals that include well-defined and easily quantifiable performance metrics. Specifically the program goals should include metrics for the following:*

Ms. Durham noted that this recommendation is transformational as it addresses unmapped areas and where studies are conducted; it increases credibility because it has a clear process and metrics on where studies are funded; it increases efficiency because it defines a process for where to study and will not waste funds; and it better meets stakeholders needs as it is predictable, consistent, and people can plan for it.

**Recommendation 4:** *FEMA should work with Federal, State, local, and Tribal partners to ensure topographic, geodetic, water-level, and bathymetry data for the flood mapping program is collected and maintained to Federal standards. Future FEMA topographic and bathymetric LiDAR acquisition should be consistent with 3DEP and Interagency Working Group on Ocean and Coastal Mapping standards and all geospatial data for the flood mapping program should be referenced to current national datums and the National Spatial Reference System . Water level gage datums for active gages should be referenced to current national datums and the National Spatial Reference System, and, to the extent practical, datums for inactive gages should be converted to meet these standards.*

The Council decided this recommendation meets all of the assessment criteria and would add value for FEMA.

**Recommendation 10:** *FEMA should transition from identifying the 1-percent-annual-chance floodplain and associated base flood elevation as the basis for insurance rating purposes to a structure-specific flood frequency determination and associated flood elevations.*

Members determined this recommendation should be a priority and is transformational and suggested that this recommendation be addressed first. Mr. Edelman noted that the subset of graduated risk would move FEMA to structure based maps and increase credibility. Ms. McConkey said that if FEMA performs structure based risk assessments, but there is no change in insurance based risk and the mandatory purchase, then the recommendation will mean nothing. Mr. Kunreuther said that information should be provided to individuals independent of the insurance premium. Mr. Ferryman agreed that in order to obtain a more accurate insurance rating, structure level data is needed. Mr. DeMulder noted that core data is needed for this recommendation to be achieved.

Mr. Rodriguez noted that stakeholders have different needs and their needs may not lend themselves to this recommendation. FEMA's mission is make sure that people understand their risk; the Council can acknowledge insurance realities, but communication will be essential. Mr. Kunreuther and Ms. Shirley said that it will be important to consider what unintended consequences might come out of this recommendation and how certain individuals and businesses will be affected, and craft appropriate risk management strategies to follow.

**Recommendation 11:** *FEMA should modify the current work flow production process and supporting management system, Mapping Information Platform, to reduce unnecessary delays created by redundant*

*tasks and inflexibility of the system. The process and system are currently not designed to properly manage non-regulatory products or products that do not fit predefined footprints. FEMA should modify the system to enable flexibility in project scope and size such as the choice of watershed size, not limiting projects to only the hydrologic unit code 8 (HUC8).*

The Council decided this recommendation meets all of the assessment criteria; however, it does not consider this recommendation to be transformational.

**Recommendation 14:** *FEMA, and its mapping partners including the private sector, should transition to a flood risk assessment focus that is structure specific. Where data are available, FEMA and its partners should contribute information and expertise consistent with their interest, capabilities and resources towards this new focus.*

The Council decided this recommendation meets all of the assessment criteria.

**Recommendation 15:** *FEMA should leverage opportunities to frame and communicate messages to stakeholders in communities so they understand the importance of addressing the flood risk today and consider long-term resilience strategies. Messages should be complemented by economic incentives such as low-interest loans and mitigation grants that lead community leaders and individuals to undertake cost-effective risk reduction measures*

The Council decided this recommendation meets all of the assessment criteria. Mr. Edelman questioned how this recommendation could be considered a top five recommendation as it says to "leverage opportunities". Mr. Rodriguez responded that this recommendation is one of the top from FEMA's perspective, especially in relation to the legislation on communicating and understanding risk. This topic is related to the technical credibility of the mapping program. Mr. Dorman said this recommendation could be consolidated into a new, 2016 recommendation. Participants agreed that the TMAC needs to receive a briefing on the CERC contract and the solutions that transform the way FEMA communicates.

Mr. Edelman suggested there needs to be a measure to see whether communication is getting better or worse. Mr. Ferryman noted that the Council needs to have a presentation on FEMA's metrics, as well as on CERC. Mr. Rodriguez said that FEMA has metrics that show how the Risk MAP program is advancing, but they do not have metrics on how FEMA is communicating risk. The customer experience effort is trying to measure the experience of the customer, but there could be other metrics that drive this.

**Recommendation 16:** *FEMA should transition from the current panel-based cartographic limitations of managing paper maps and studies to manage NFIP data to a database derived, digital display environment that are fully georeferenced and relational, enabling a single digital authoritative source of information and database-driven displays. Towards this transition FEMA should;*

The Council decided this recommendation meets all of the assessment criteria.

Participants agreed to include a small section on the Future Conditions Report *2015 Future Conditions Risk Assessment and Modeling Report*. Mr. Ferryman suggested adding the recommendation regarding performing demonstration projects. Ms. Lathrop noted that it will be important to include a "score card" on where FEMA is on the status of implementing the 2015 recommendations.

The Council discussed the topic statements and a priority ranking of the topics. The Council also discussed potential lead authors for each section.

### **Public Comment Period**

Ms. Boyer announced that, per FACA, members of the public are provided the opportunity to provide oral and written comments on the issues to be considered by the TMAC. She requested that speakers limit their public comments to no more than three minutes and said that the public comment period will not exceed 30 minutes. While the public was offered the opportunity to speak, no comments were received.

### **Next Steps**

Mr. Dorman asked members to let him and Ms. Boyer know if an SME is needed as soon as possible. The members decided that the next in-person TMAC meeting will be held on May 9-10, 2016. FEMA support staff will distribute save the date meeting invitations to TMAC members.

### **Adjournment**

Ms. Boyer thanked members for their participation and adjourned the meeting.

### **Action Items**

- FEMA will provide:
  - The details of the May 2016 Guidelines and Standards;
  - A formal tasking memo to help guide the TMAC;
  - The strikethrough version of the law that incorporates legislative requirement 24; and
  - More information/copy of the MOU for legislative requirement 39.
- Members should let Mr. Dorman and Ms. Boyer know if an SME is needed as soon as possible (e.g., CERC, CNMS).
- FEMA support staff will distribute save the date meeting invitations to TMAC members.

### **Certification**

*I hereby certify that, to the best of my knowledge, the foregoing minutes are accurate and complete.*



John Dorman  
TMAC Chair