



FEMA

TMAC

Technical Mapping Advisory Council Meeting September 29, 2015

TMAC Members

Juliana Blackwell
Richard Butgereit
Mark DeMulder
John Dorman
Leslie Durham
Scott Edelman
Steve Ferryman
Gale Fraser

Howard Kunreuther
David Mallory
Robert Mason
Sally McConkey
Luis Rodriguez
Christine Shirley
Cheryl Small

Subcommittee Members

Laura Algeo, FEMA
Maria Honeycutt, NOAA
Doug Marcy, NOAA

Andy Neal, FEMA
Paul Rooney, FEMA
Jonathan Westcott, FEMA

Government Attendees

David Bascom, FEMA
Kathleen Boyer, FEMA, TMAC ADFO
Mark Crowell, FEMA, TMAC DFO

Michael Godesky, FEMA, TMAC ADFO
Lynda Pilgrim, FEMA

Registered Public Attendees

Gib Jones, Dewberry
Lauren Pachman, American Academy of Actuaries

Jeff Sparrow, Michael Baker International
Loren Wobig, ASFPM

Support Staff

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

Diane Pancoska, Booz Allen Hamilton
Meredith Tull, Booz Allen Hamilton
Adam Warfield, Booz Allen Hamilton

Purpose

The purpose of the meeting was to allow the Technical Mapping Advisory Council (TMAC) members to (1) present and deliberate on draft narrative and recommendations to be incorporated into both the 2015 Annual Report and the Future Conditions Report; and (2) identify and coordinate next steps of the TMAC report development.

Welcome/Call to Order/ Roll Call

Mr. Mike Godesky, TMAC Alternate Designated Federal Officer (ADFO), welcomed members to the meeting. He then introduced Mr. Mark Crowell, Federal Emergency Management Agency (FEMA), and Ms. Kathleen Boyer, FEMA, who serve as the TMAC DFO and ADFO, respectively. Mr. Godesky proceeded with a roll call of TMAC members and provided an overview of the Adobe Connect virtual meeting functions. Mr. Godesky reminded everyone of the *Federal Advisory Committee Act (FACA)* compliance provisions. Following his remarks, Mr. Godesky made a motion to convene the meeting, which Mr. John Dorman, TMAC Chair, seconded.

Process Schedule/Meeting Objectives

Mr. Dorman provided an overview of the agenda and discussed the meeting's objectives, including: (1) discuss and deliberate any substantive final issues associated with the 2015 Annual Report and the 2015 Future Conditions Report (pink version) draft narrative and recommendations; (2) provide direction feedback as a Council to the authors of the recommendations; (3) identify and discuss strategies for how to fill in current gaps in both reports; and (4) communicate resource needs to complete recommendations.

Mr. Dorman also reviewed the status of previous action items from the September 9, 2015, Virtual TMAC Meeting and noted that four items were still outstanding:

1. Determine if the TMAC should recommend if future conditions should be a part of FIRM or a digital layer that can be turned on and off.
2. Ensure consistency in terminology between the two reports.
3. For Future Conditions Report recommendation 4, ("Provide future conditions flood risk products and information for riverine areas"), come to an understanding on elevation versus. discharge.
4. Further discuss FEMA's use of Hydrologic Unit Code 8 (HUC-8) regarding watershed scale.

Mr. Dorman outlined the upcoming deadlines for both reports, to ensure time for technical review before the next in-person TMAC Meeting, October 20-21, 2015.

2015 Annual Report – Draft Content: TMAC members will review, comment and deliberate draft content for potential inclusion in the 2015 Annual Report

Ms. Leslie Durham, Annual Report Subcommittee Chair, thanked subcommittee members for their contributions and hard work trying to achieve consensus on the draft recommendations since the last virtual meeting. Ms. Durham discussed the next steps needed for Annual Report production, including addressing all action items and comments by October 6, 2015, to allow for technical review prior to the October 20-21, 2015, TMAC Meeting, as well as directions for how and where to incorporate all additional report revisions.

Overall action items include:

1. Verify all metrics and numbers,
2. Label tables and figures,
3. Add a brief Introduction for each topic that includes why the topic is being discussed by TMAC and the issues the recommendations are intended to address.
4. Add a "Findings Section" in each topic, which will be the analysis of how FEMA does things today – some of this is in the Background Section(s) and should be moved into Findings Section before each Recommendation.
5. Recommendations need supporting text and should include a discussion on the benefit, impact and any noted dependencies.

Ms. Sally McConkey, TMAC member, asked why the *Biggert Waters Flood Insurance Act of 2012* (BW-12) references were removed from the report. Ms. Durham explained that the BW-12 text had been placed alongside the issue statements for each topic, but members decided to include the legislative text in a narrative form instead. Ms. Durham also clarified that the report writers will need FEMA's assistance to ensure that the report uses the most current metrics.

Ms. Durham led members through the recommendation topic action items. Topics included: Community of Users and Uses, Flood Hazard Identification – Program Goals and Priorities; Core Data, Models, and Methodology; and Production Processes, Flood Risk Assessment and Communication, Data

Management and Distribution, Federal Partner Collaboration, Cooperating Technical Partners, and Maintenance and Funding. Ms. Durham explained that each topic author was given specific direction on areas that need more supporting information for the introduction, findings, or recommendation portion.

Section 4.0 *Recommendation Summary Table*

Members agreed that the Recommendation Summary Table needs to include whether the recommendation will be implemented through policy, legislative, or regulatory means.

Topic 4.1 *Community of Users and Uses*

Ms. Christine Shirley, TMAC member, noted the need for assistance with figures in this topic. The figures discussed the overlaying of flood hazard data onto a different base map than what the data was developed on, which is an issue that the TMAC has yet to discuss. Ms. McConkey stated that the figures are valuable and can illustrate this topic as an issue that needs to be discussed in the 2016 Annual Report. Ms. McConkey and Ms. Shirley will work together to determine what approach to take, and Ms. McConkey will send a poll to other contributors to obtain their opinions.

Topic 4.2 *Flood Hazard Identification – Program Goals and Priorities*

Ms. Durham will update the introduction to include a discussion of the issue at hand, as well as revise the supporting recommendations to include a discussion on the benefits, impacts, and dependencies.

Topic 4.3 *Flood Hazard Identification – Core Data, Models, and Methodology*

Participants noted that the introduction should be modified to discuss the issue and how it relates to BW-12. Members discussed whether the discussion on both floodways and coastal hydrology and hydraulics would be better aligned to a different section. Ms. McConkey noted that this section covers methodology and models and that floodways may not be considered a process. Ms. Shirley suggested that the language from the topic of Accuracy and Precision appears to be a recommendation and it should be extracted and placed in the recommendation section. Ms. McConkey and Ms. Shirley will work together to determine if it should be considered a recommendation.

Discussing the recommendations section, Ms. Durham said that the topography and bathymetry section, as it is, is currently very technical and asked for contributors to simplify this section. Recommendation authors were asked to include background, findings, and discussion on benefit, impact and dependencies. Mr. Robert Mason, TMAC member, noted that material in the recommendation sections includes a lot of shared information, and the section needs to be refined and refocused. He also asked about the location of the recommendation regarding using Bulletin 17C. Ms. McConkey responded that the TMAC decided to remove that recommendation during the September 9, 2015, meeting as the consensus was that it would be an automatic and routine process for FEMA. She recommended reinserting it as a recommendation for FEMA to incorporate into its guidelines. The Council agreed to reincorporate the recommendation into the report.

Ms. Juliana Blackwell, TMAC member, will revise and simplify the technical terms used in the sections regarding topography and bathymetry. She will also work with Ms. Nancy Blyler, TMAC member, Mr. Mark DeMulder, TMAC member, and Mr. Mason to recraft the discussion in the recommendation section.

Dr. Maria Honeycutt, SME, asked why there was concern regarding event-based coastal erosion being included under this section. Ms. Durham explained that this section speaks to modeling and the inclusion of event-based coastal erosion might distract from the rest of the discussion. Mr. Rodriguez agreed with Dr. Honeycutt that coastal erosion belongs in this section, as it is a part of modeling. Dr. Honeycutt will work with other contributors to resolve this issue. In addition,

Dr. Honeycutt will work with Ms. McConkey on the recommendation regarding coastal data in the models for coastal risk assessment that was previously included in the report.

Topic 4.4 *Flood Hazard Identification – Production Processes*

Participants agreed that this topic requires additional information and must be checked for consistency. Mr. Dorman will lead the production of this section.

Topic 4.5 *Flood Risk Assessment and Communication*

Participants noted that this topic and its associated recommendations need additional information to support the section. Mr. Mason requested that the recommendations be numbered for easy reference in the next iteration of report production, and Ms. Durham assured him it will be included in the next version. Mr. Howard Kunreuther, TMAC member, asked how FEMA handles its communication process. Mr. Rodriguez noted that some aspects of risk communications are covered in the topic of uncertainty and offered to help with this portion of the text. Ms. Shirley and Mr. Chris Jones, TMAC member, will develop an introduction for this chapter.

Topic 4.6 *Data Management and Distribution*

Ms. Durham stated that this section needs an introduction and a discussion about products that are used for regulatory purposes only and what it means to have regulatory weight. Mr. Richard Butgereit, TMAC member, noted that the recommendation is worded differently in a separate part of the report, and the Council needs to determine which version is correct.

Ms. McConkey questioned the statement that the audience for the reports is the FEMA Administrator. She said that while it is true that the TMAC submits its reports to the Administrator, the reports will be circulated through FEMA Headquarters, where FEMA employees will be able to understand the technical language, so the report should not be “dumbed down”. Mr. Rodriguez noted that there is value in using language to make the reports easier to read to an audience that is not immersed in the program. He added that there are external stakeholders, such as Congress, that could benefit from language a broader audience is able to understand.

Topic 4.7 *Federal Partner Collaboration*

Ms. Durham said that the draft text in this section refers to a recommendation in another section, and requested that Mr. Mason and Ms. Blyler coordinate to resolve this issue. Mr. Mason noted that one of the recommendations, “FEMA should work with Federal, State, and local agencies, particularly the US Geological Survey and the National Ocean Service, to ensure the availability of the accurate water level data needed to map flood hazards” has left out important words. Mr. Mason suggested adding “availability of water level data **and stream flow data**”. Ms. Durham stated that they would discuss that recommendation further later in the meeting.

Topic 4.8 *Cooperating Technical Partners*

Mr. Dorman will revise the recommendation to include additional supporting information.

Topic 4.9 *Maintenance and Funding*

Mr. Rodriguez noted that there is a section on the Key Decision Point (KDP) process that appears to highlight the benefits of the KDP process. He said that in the Risk MAP process section, there is narrative that says the KDP process has been introducing more delays, which seems to point in contradictory directions. Mr. Rodriguez offered to help revise this section.

Section 2.0 Introduction

Ms. Durham asked for volunteers to author this section. Mr. Dorman noted that the Future Conditions Report does a good job at defining the National Flood Insurance Program (NFIP) and the different mapping zones. He volunteered to work on the introduction, leveraging content from the Future Conditions Report.

Section 3.0 Flood Information Quality

Ms. Durham noted that there have been a lot of comments and edits to this section. She asked members to review this section and ensure that it flows as intended. Mr. Rodriguez and Mr. Kunreuther volunteered to work with Mr. Jones on this section.

Section 5.0 Fiscal Year (FY) 16 Topics

Mr. Edelman suggested that the group leverage information in the Future Conditions Report for this section. Ms. Durham, Mr. Dorman, and Ms. Cheryl Small, TMAC member, will author this section.

Next, TMAC Members discussed select draft recommendations and their suggested input and revisions.

Draft Recommendation 48: *FEMA should modify the current Risk MAP work flow production process requirements and management system to support a more flexible, time efficient production development of Risk MAP flood hazard studies and risk assessments. The process should recognize and be flexible enough to support multiple study resolutions (e.g. basin studies).*

Mr. Rodriguez asked for clarification of what “time efficient” entails in this recommendation. Mr. Steve Ferryman, TMAC member, and Ms. McConkey indicated that the intention of the recommendation is to expedite the timeline for the mapping process, as it can take years to complete currently. Mr. Rodriguez said that the recommendation is written broadly, but the surrounding narrative focuses on watershed level, IT systems and the administrative process, some which are not driven by regulatory or legal procedures. He suggested refining the recommendation so that it would be more useful to FEMA. Mr. Dorman explained that the recommendation was developed based on his personal experience in North Carolina, where the Mapping Information Platform (MIP) does not have the flexibility or capability to handle a large watershed.

Mr. David Mallory, TMAC member, suggested that it might be helpful to state what the goal of the recommendation is, what timeline should be aimed for and why, and speak to an analysis of where the bottlenecks are and where the process slows down. Ms. McConkey added that it would be beneficial to recommend that the MIP needs to be upgraded to allow for more flexibility, if that would help secure funding to fix the MIP. Mr. Dorman and Mr. Rodriguez will modify this recommendation.

Draft Recommendation 10: *FEMA should adopt a flood risk assessment focus that is structure specific. It should be noted that flood hazard identification is an essential component in of performing flood risk assessment and must be performed prior to any flood risk assessments. However, to advance mitigation strategies and support loss estimates and insurance rating purposes, flood risk assessments should be the focal point. Towards this new focus:*

- *FEMA should establish an Implementation Plan for Structure-Specific Flood Risk Assessments;*
- *FEMA should initiate dialogue with risk assessment stakeholders to define structure-specific risk assessment products, displays, standards, and data management.*
- *FEMA should draw from and leverage partners and programs successfully performing risk assessment.*
- *Where data exists that appropriately supports structure-specific risk assessments or can be leveraged from partners, FEMA should accommodate and support such assessments structure-based risk assessments.*

Mr. Kunreuther highlighted the opportunity to work with the private sector through this recommendation and supported the change proposed by Mr. Ferryman that reads “FEMA *and its mapping partners, which include the private sector*, should adopt a flood risk assessment focus that is structure specific.” Ms. McConkey pointed out that there are many uses and users that do not use a structure base, and this recommendation makes it sound as if the whole program should be structure based. She continued that her main concern is clarifying that FEMA should provide hazard information with regards to insurance and risk communication, but make it clear that FEMA is not expected to make an assessment for every structure.

Mr. Mason explained the difference between identifying a flood risk and a flood hazard, and asked if FEMA has resources to identify both flood risks and flood hazards. He believes this would hurt prioritization for flood hazard mapping, and indicated that States that do not have the appropriate resources would lag behind as a result of this recommendation. Mr. Mason said that it would be better to address the risk portion of this recommendation in 2016 when the TMAC can examine the necessary funding, technology, and requirements.

Mr. Edelman stated that the risk assessment on the structure level is already required on an Elevation Certificate (EC). He added that any structure built within the floodplain needs an EC, and all the information on the certificate is enough for FEMA to rate insurance that is structure specific. Mr. Edelman said that the recommendation should include language stating that FEMA has an inventory of grandfathered policies that have no information on how the elevation or structure relates back to the floodplain.

Mr. Kunreuther agreed that ECs are critically important and that highlighting this importance is part of risk communications, helping people in flood prone areas to understand their risk. Mr. Durham agreed, noting that this is the direction that the program is already headed, and having a recommendation that asks FEMA to take one step further toward that intended purpose would be beneficial. Mr. Rodriguez clarified that structure risk assessment means communicating the risk in terms of loss/monetary assessment.

Mr. Andy Neal, SME, offered insight on ECs, stating that while ECs are utilized in the programs current methodology in order to rate structures, the National Academy of Sciences (NAS) recently released a report on premium rates on low lying structures that called into question the specific items on the EC. Mr. Neal cautioned the group from limiting the discussion to ECs or assuming that the EC is the best proxy for risk.

Members agreed to keep this recommendation in the report. Mr. Dorman said that any further comments should be directed to the section author.

Draft Recommendation 14: *FEMA should strategically plan how to roll out modifications of procedures to avoid confusion, and avoid any retroactive procedures.*

Members agreed that this recommendation is too broad and that the intent must be made clear. Mr. Edelman suggested changing the recommendation to contain a more positive tone. He suggested the following language: “When the Cooperating Technical Partner (CTP) is awarded a grant, a scope should be set at the time of the signing unless agreed by both parties in the future”. Mr. Rodriguez agreed that the recommendation needs to have a specific focus area, stating that it appears to be about the CTP efforts and the grant requirements and limitations that exist. Mr. Rodriguez also commented that “avoid any retroactive procedures” may not be feasible, as FEMA may not have that flexibility, and it may not always be an option.

Ms. McConkey discussed the KDP process, noting that it is a time consuming process, which is really the heart of the matter in this recommendation. She asked FEMA to examine the grants process to adapt to changing procedures. Members agreed to modify the recommendation to specifically speak to the CTP program and associated processes.

Draft Recommendation 7: *FEMA should modify the guidelines and procedures to include “out as shown” and “inadvertent inclusion” Letter of Map Amendment (LOMA) determinations as a deliverable of the mapping process. The LOMA determinations, including mass LOMAs, should be issued the day after the effective date of the new FIRM.*

Ms. Small asked why the LOMA determination would be used the day after the effective date. Ms. Durham explained that is the process for Letters of Map Revision (LOMAR) and it is meant to simplify it by having the determination go out at the same time as the maps.

Ms. Small expressed several concerns regarding this recommendation. She suggested that the TMAC needs to look at a broader user base and to take time to look at the industry and the effectiveness of this recommendation, including what communication is needed. Ms. Small said that industry needs to process the LOMAs before the work can be done on a new transaction on an effective map or before going back through the inventory to update it. She continued that it is important to release the data prior to the effective date, and process it in a timely manner. If the effective date is after determination there will be a lag in time. Although unsure of what specific modifications need to be made at this time, Ms. Small stressed that thought needs to be given to the communication pieces between the users and the communities and FEMA and contractors, to better understand the interworking of this type of data on maps being released prior to the effective date.

Mr. Rodriguez noted that Ms. Small’s points are valid and could potentially be handled through business rules and from lessons learned through previous pilot projects. He offered to have a FEMA SME consult on this topic. Ms. Durham and Ms. Small will work together to modify this recommendation.

Draft Recommendation 6: *FEMA should develop national flood hazard and risk assessment program goals that include well-defined and easily quantifiable performance metrics. Toward this goal, FEMA should:*

- *Develop goals for maintaining an inventory of valid, unverified, unknown and expiring miles.*
- *Develop goals for addressing the non-modernized areas of the nation and unstudied miles.*
- *Develop goals for conducting flood risk analysis and assessments on the built environment.*
- *Develop metrics on how the goals will be measured should be developed and incorporated into the National Flood Hazard Mapping and Risk Assessment Program.*
- *Include a population metric that is more representative of the actual population impacted by flood sources that has a drainage area greater than one square mile. One method could be accomplished by using the percent of streams with identifiable flood plains and apply that percentage to the population within the census block group.*

Mr. Rodriguez requested clarification on the last bullet in this recommendation. He noted that the narrative includes information that is not entirely accurate. Mr. Edelman, Ms. Durham, and Mr. Rodriguez will revise this recommendation.

Draft Recommendation 36: *FEMA and its partners should frame and communicate messages to stakeholders so they understand flood risk in terms of their values and needs, thus enabling them to incorporate flood risk into their decision making process. Messages can be complemented with economic incentives that lead individuals to undertake cost-effective risk reduction measures.*

Ms. Durham suggested deferring to the wording in the Future Conditions Report for this recommendation.

Draft Recommendation 20: *FEMA should consider the National Academy of Public Administration (NAPA) recommendations 6, 7, 8, 9 and 15 and use them to develop more detailed interagency and intergovernmental recommendations on data and program related activities that can be more effectively leveraged in support of floodplain mapping.*

Members did not have any comments and were advised to speak with Ms. Blyler or Mr. Mason if they would like to add revisions.

Draft Recommendation 24: *FEMA should work with Federal, State, and local agencies, particularly the U.S. Geological Survey and the National Ocean Service, to ensure the availability of the accurate water level data needed to map flood hazards.*

Mr. Mason requested that the Council add “stream flow” to this draft recommendation. He explained that FEMA is using stream flow for data analysis, not water level; therefore the TMAC should be clear in its recommendation about what data FEMA should work with other agencies to collect. Mr. Mason continued that FEMA has not been funding the stream gauge program, but the recommendation can highlight its importance. Ms. McConkey added that there are several recommendations that are not “actionable” for FEMA, but they are important for drawing attention to the issue. Additionally, she noted that other Federal agencies might utilize the recommendation as justification for their own actions.

Mr. Rodriguez agreed with the direction of this recommendation as stream flow and gauge information is a dataset used in the FEMA program for flood studies and mapping efforts. He suggested modifying the recommendation to read “ensure the availability **and use** of the accurate water level”.

Draft Recommendation 44: *Develop and implement a suite of strategies to incentivize communities and NGO/private sector stakeholders to increase partnering and subsequent contributions for flood hazard risk updates and maintenance.*

Members did not have any additional comments and agreed to proceed with the recommendation as it is written.

Draft Recommendation 43: *Provide recurring funds to ensure that all inventoried flood studies are assessed every three years, and if appropriate, updated prior to reaching a five (5) year shelf life. Recurring funds should also ensure that new flood studies are performed on flooding sources where there is anticipated or ongoing development patterns.*

Ms. McConkey expressed concern about stating that FEMA has to provide recurring funds, especially for cases where FEMA does not have the funding and cannot necessarily meet the time constraints required in the recommendation. Mr. Dorman clarified that the recommendation requires an assessment every three years because the models do not necessarily need to be updated every time. He said that the intent of the wording is that there need to be recurring funds to ensure the models reflect the current situation for both existing models and models that need to be done. Mr. Rodriguez clarified that the assessments that FEMA makes do not look at whether the model is current, but rather looks if FEMA’s data reflects current conditions. Mr. Dorman added that this recommendation speaks to a broader audience than FEMA. Mr. Dorman and Mr. Rodriguez will work together to refine this recommendation.

New Draft Recommendation #1: *Endorse the President’s proposed 2016 Budget Request of \$400 million for the Flood Hazard and Risk Assessment Program.*

Mr. Gale Fraser, TMAC member, questioned whether \$400 million was enough and if the money will be used appropriately. Mr. Mallory added that BW-12 authorized the \$400 million, so the TMAC should recognize both. Ms. Shirley said that she was uncomfortable with endorsing the President’s

budget. Council members agreed that this recommendation should be revised. Mr. Dorman will modify this recommendation.

Draft Recommendation 25: *FEMA should promote, and require where federally funded, data collected and maintained according to federal standards to ensure accurate, consistent information for the National Flood Mapping Program.*

- *FEMA should work with federal, state, and local partners to collect and maintain data to federal standards for the flood mapping program*
- *Future FEMA topographic and bathymetric lidar acquisition should be consistent with 3DEP (currently QL2) and Interagency Working Group on Ocean and Coastal Mapping standards.*
- *FEMA should require all geospatial and water level gauge data for the flood mapping program are referenced to current national datums and the National Spatial Reference System.*

Mr. DeMulder asked the Council to remove “(currently QL2)” from the recommendation. Mr. Mason added that he believes that the last part of the recommendation is duplicative of the first half. Mr. Edelman recalled that when the Council last spoke on this recommendation, they talked about how FEMA is collecting information for Federal standards and that future FEMA topographic and bathymetric data should be consistent with these standards. Therefore, Mr. Edelman said that the first two sub-bullets cover what is needed, and the third bullet is redundant. Mr. Mason suggested that this recommendation could be an expensive proposition and could have a detrimental effect on the network going forward.

Ms. Blackwell explained that the national datum will be changing in the year 2022 and the reason to craft the recommendation with a forward looking twist is to signal that things are going to be changing. Global Positioning System (GPS) and Global Navigation Satellite System (GNSS) will be much more advanced in 2022 than today. She explained that this recommendation is meant to be a precursor to where things are going.

Mr. Mason added that flood data could be rendered unavailable to FEMA when sites are discontinued, so the costs would not be insignificant. The real concern is that there is currently no way to record multiple datums for a database. Ms. Blackwell countered that there are transformational models that have mathematical equations that allow people to go from one datum to another. Ms. Durham advised members to speak with Mr. Dorman if they have any additional issues to raise.

Future Conditions Report – Draft Content: TMAC members will review, comment and deliberate draft content for potential inclusion in the Future Conditions Report

Mr. Edelman reviewed the report production schedule and noted that Chapters 1, 2 and 5 are ready for final comments. Next, he requested comments on Chapter 7, Summary and Recommendations. Mr. Edelman explained the premise that carries throughout the entire report: future conditions data should be generated as a non-regulatory product that local partners can adopt if they wish. He said that the overall direction is that future conditions will exist as a digital layer and will not be mandatory on the Flood Insurance Rate Maps (FIRM).

Mr. Dorman clarified that this reference to FIRMs refers to paper maps, and there needs to be a distinction and emphasis on regulatory versus non-regulatory products. Mr. Rodriguez reminded the Council that the legislation directs the TMAC to develop recommendations on how FIRMs should incorporate the best available climate science. Mr. Edelman agreed to include text in this section on the best available climate science.

Mr. Edelman asked Mr. Doug Marcy, SME, to speak on the riverine climate aspect in the recommendation. Mr. Marcy explained that this topic turned out to be very complex. Mr. Marcy explained that the report authors found that there is not a reliable way to accurately downscale to a stream for future

impacts on riverine; however, the frequencies of events are increasing and storms are getting more intense and more frequent. Mr. Marcy suggested moving this recommendation to the 2016 Annual Report as this issue is not fully resolved. Mr. Mason noted that the TMAC must have actionable recommendations on how to handle climate change. Mr. Fraser noted that there may not be enough answers next year to fully address it then either, and the recommendations should stay in this report. Mr. Edelman suggested that future Annual Reports include a chapter on future conditions so there can be an update on what the TMAC has learned in that particular year.

Mr. Edelman asked each of the chapter authors to briefly speak on their chapter. Mr. Mark Crowell, SME, discussed Chapter 2, *Future Conditions Background*. He said that the chapter consists of historical and background material and does not include recommendations. Mr. Steve Ferryman discussed Chapter 3, *Future Conditions and Changes in the Floodplain*, noting that it is progressing well. Mr. Mallory said that Chapter 4, *Future Data Needs*, needs to be refined on the topics of land cover needs, zoning, and horizon plans. Mr. Marcy explained that Chapter 5, *Approaches for Future Conditions Calculation and Mapping*, is almost complete, with all comments addressed and graphics being fine-tuned. He added that Dr. Kate White, SME, is providing input and fact checking on coastal portions. In addition, TMAC members agreed that long-term erosion should be incorporated into the report.

Draft Recommendation 6: *Perform demonstration projects to develop future conditions data for representative coastal and riverine areas across the nation to evaluate the costs and benefits of different methodologies or identify/address methodological gaps that affect the generation of future conditions data.*

Mr. Edelman took a poll of the members and the consensus was to keep a recommendation on demonstration projects.

Draft Recommendation 7: *Data and analysis used for future conditions flood risk information and products should be consistent with standardized data and analysis used to determine existing conditions flood risk (currently defined in the NFIP Guidelines and Specifications for Flood Hazard Mapping Partners), but also should include additional future conditions data, such as climate data, sea level rise information, long-term erosion monitoring, land use planning data, planned restoration projects, planned civil works projects, as appropriate, that would impact future flood risk.*

Members discussed and agreed that this recommendation needs to be further developed before it can go to full Council review.

Mr. Edelman proposed separating out future conditions that assume no intervention by man, and future conditions if things are done as planned. Mr. Mason said the Council would have to follow up with a plan for how to deal with future conditions in this manner. Mr. Mallory will develop language on this topic. Mr. Fraser suggested using this concept in conjunction with the prior recommendation on demonstration projects, and Mr. Kunreuther agreed and suggested using this concept as a basis for choosing the pilot communities.

Participants discussed HAZUS level 3, asking if the 2015 Annual Report includes a discussion on the topic. Mr. Mason said that HAZUS is a leveraging tool and uses existing analysis to see future risk. Ms. Durham questioned why floodplain delineations are on HAZUS level 3, explaining that it can be done on HAZUS level 2. Mr. Mallory said that the report should say “HAZUS level 2” Mr. Edelman said that the report should include language that HAZUS is a tool that can be used to help officials adopt higher standards.

Members discussed Chapter 6, *Considerations for Future Conditions Mapping Impacts*. Mr. Kunreuther noted that premiums that reflect risk have two elements: the idea is that if there are better maps and better availability of maps, then premiums will be able to reflect risk. He said that there is a connection between how the maps are going to be drawn and how to set premium rates. Mr. Dorman noted that this is outside of the scope of the report, and should be one of the considerations of topics to explore in the 2016 Annual Report. Mr. Kunreuther stated that mapping can help address risk management concerns;

therefore there needs to be a good understanding of what the risks are in order to have good risk management strategies in place. Mr. Edelman will send out a poll on Chapter 6.

2015 Annual Report – Draft Content: TMAC members will review, comment and deliberate draft content for potential inclusion in the 2015 Annual Report

Draft Recommendation 47: *FEMA should work with CTPs to develop a set of metrics that communicate project management success, competencies, and capabilities of CTPs. FEMA should establish a progressive authority framework that CTPs can request and be delegated.*

Mr. Dorman clarified that “progressive authority framework” refers to the idea of allowing a CTP to progress in responsibility and in order to be given more responsibility, they need to meet specific metrics. Mr. Rodriguez suggested that the TMAC examine the legal perspective as the CTP Program is a national program and FEMA may not legally be allowed to delegate authority to a CTP. Mr. Ferryman added that there is a reference in BW-12 that mentions “recommend how to improve delegating mapping activities to state and local partners”, and Mr. Rodriguez noted that “authority” could come with liability. Mr. Dorman said that the recommendation may have been derived from the concept that FEMA is authorized to make maps and they delegate that task to CTPs.

Draft Recommendation 48: *To ensure strong collaboration, communication and coordination between FEMA and its CTP mapping partners, FEMA should establish a National Flood Hazard Risk Management Coordination Committee. The role of the committee should be focused around the on-going implementation of the 5-year Flood Hazard Mapping and Risk Assessment Plan. FEMA should add other members to the committee that have a direct bearing on the implementation of the plan.*

Mr. Dorman said that the intention of this recommendation is to allow representative CTPs to have an understanding of how FEMA is rolling out the five-year maintenance plan. Mr. Rodriguez asked if this proposed committee is different than the recommendation asking for a planning effort for the maintenance of flood hazard information. He said that this recommendation would be better served if it was broader and not exclusive to CTPs. The Council agreed to revise this recommendation to include other representatives.

Public Comment Period

Mr. Godesky 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. Mr. Godesky requested that speakers limit their public comments to no more than three minutes and said that the public comment period will not exceed 15 minutes. While the public was offered the opportunity to speak, no comments were received.

Next Steps

Mr. Dorman reminded the TMAC that the deadline for report revisions is October 6, 2015. He said that a technical edit will be performed from October 6-14, 2015, and then members will receive the reports for review, prior to the October 20-21, 2015, TMAC meeting.

Action Items

Previous Action Items:

- Determine if the TMAC should recommend if future conditions should be a part of FIRM or a digital layer that can be turned on and off.
- Ensure consistency in terminology between the two reports.

- For Future Conditions Report recommendation 4, (“Provide future conditions flood risk products and information for riverine areas”), come to an understanding on elevation vs. discharge.
- Further discuss FEMA’s use of HUC-8 regarding watershed scale.

Annual Report

Overall Action Items:

- Addressing all action items and comments by close of business October 6, 2015
- Verify all metrics and numbers
- Label tables and figures
- Add a brief Introduction for each topic that includes why the topic is being discussed by TMAC and the issues the recommendations are intended to address.
- Add a “Findings Section” in each topic, which will be the analysis of how FEMA does things today – some of this is in the Background Section(s) and should be moved into Findings Section before each Recommendation.
- Recommendations need supporting text and should include a discussion on the benefit, impact and any noted dependencies.

Topic Action Items:

4.1 Community of Users and Uses

- Ms. McConkey and Ms. Shirley will work together to determine what approach to take
- Ms. McConkey will send a poll to other contributors to see how they feel about it.

4.3 Flood Hazard Identification – Core Data, Models, and Methodology

- Ms. McConkey and Ms. Shirley will work together to determine whether this topic should be considered a recommendation.
- Ms. Blackwell will work on revising and simplifying the technical terms used in the sections regarding topography and bathymetry. She will work with Ms. Blyler, Mr. DeMulder, and Mr. Mason to recraft the discussion in the recommendation section.
- Dr. Honeycutt will work with other contributors to resolve this issue, and will also work with Ms. McConkey on the recommendation on coastal data in the models for coastal risk assessment that was previously included in the report.

Topic 4.5 Flood Risk Assessment and Communication

- Ms. Durham will ensure recommendations are numbered for easy reference in the next iteration of report production
- Ms. Shirley will help author the introduction for the chapter, and will connect with section author, Mr. Jones, to collaborate.

Topic 4.6 Data Management and Distribution

- The Council needs to determine which version of the recommendation in this section is correct as it is worded differently in two separate places.

Topic 4.7 Federal Partner Collaboration

- Ms. Durham noted that it seems that the draft text in this section actually refers to a recommendation in another section, and requested that Mr. Mason and Ms. Blyler coordinate to resolve this issue.

Section 2.0 *Introduction*

- Mr. Dorman will work on the introduction piece.

Section 3.0 *Flood Information Quality*

- Mr. Rodriguez and Mr. Kunreuther volunteered to work with Mr. Jones on this section.

Recommendation Action Items:

- #48: Members chose to keep Recommendation 48 in the report, and Mr. Dorman and Mr. Rodriguez are tasked to work together to modify it.
- #7: Ms. Durham and Ms. Small will work together to modify this recommendation.
- #43: Mr. Dorman and Mr. Rodriguez will work together to refine this recommendation.
- New Recommendation #1: Mr. Dorman will modify this recommendation.

Future Conditions Report Action Items:

- Recommendation #7: Mr. Mallory will craft something on this topic for the Council to reflect on.
- Mr. Edelman will send out a poll on Chapter 6.

Certification

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

A handwritten signature in black ink that reads "John Dorman". The signature is written in a cursive, flowing style.

John Dorman
TMAC Chair