

**National Construction Safety Team
Advisory Committee (NSTCAC) Meeting
National Institute of Standards and Technology (NIST)
Gaithersburg, Maryland March 26, 2015**

Meeting Summary

Advisory Committee Members:

Jeremy Isenberg, Chair	Stanford University
Ronny J. Coleman*	Fireforceone (retired)
Paul A. Croce	FM Global (retired)
Susan L. Cutter*	University of South Carolina
Carlos Fernandez-Pello	University of California, Berkeley
Anne S. Kiremidjian	Stanford University
R. Shankar Nair*	exp US Services Inc.
<i>James R. Quiter</i>	Arup
<i>Sarah A. Rice</i>	The Preview Group, Inc.

NIST Representatives, Guests, and Contractor Support:

Willie May	Under Secretary of Commerce for Standards and Technology and Director, NIST
Howard Harary	Director, Engineering Laboratory (EL), Designated Federal Officer
Melissa Lieberman	Deputy Chief Counsel for NIST
<i>Alice McKenna</i>	Senior Counsel, General Law Division, Department of Commerce
Long Phan	Acting Director, Disaster and Failure Studies Program, EL, NIST
Eric Letvin	National Security Council staff (on detail from his position as Director, Disaster and Failure Studies Program, NIST)
Marc Levitan	Lead, National Windstorm Impact Reduction Program (NWIRP) R&D, EL, NIST
Erica Kuligowski	Joplin Task Leader, Sociologist, Community Resilience Group, EL, NIST
Jason Averill	Chief, Materials and Structural Systems Division, EL, NIST
Michael Newman	Public Affairs Office, Media Officer for NIST Activities, NIST
Terri McAllister	Group Leader, Community Resilience Group, EL, NIST
Anthony Hamins	Chief, Fire Research Division, EL, NIST
Craig Weinschenk	Mechanical Engineer, Fire Research Division, EL, NIST
Nelson Bryner	Chemical Engineer, Fire Research Division, EL, NIST
Nancy McNabb	Manager, Codes and Standards, Community Resilience Group, EL NIST
Elizabeth Garza	Assistant Coordinator, NIOSH Construction Program, National Institute for Occupational Safety and Health (NIOSH)
Tina Faecke	Management and Program Analyst, NEHRP EL, NIST

Benjamin Davis	Management and Program Analyst, Community Resilience Group, EL, NIST
Melissa Banner	Administrative Assistant, Community Resilience Group, EL, NIST
Vivian Seager	Senior Administrative Associate, WJE
Mat Heyman	Impresa Management Solutions

Attendees in *italics* participated via conference call.

*Committee members not in attendance.

Summary of Discussions

I. Opening Remarks

Dr. Jeremy Isenberg, Chair of the Advisory Committee (AC), opened the meeting on March 26, 2015 and welcomed the NCSTAC members and the NIST representatives to the meeting. He reviewed specific goals for the meeting, in addition to the goals stated in the agenda:

1. To hear about the Disaster Resilience Center of Excellence. For example, how would the Joplin investigation have been conducted differently if that Center's work results were available?
2. Data repository: How is the project progressing?
3. Fire investigations: Receiving the latest from NIST regarding work on Wildland Urban Interface (WUI) fires.

Dr. Willie May, Under Secretary of Commerce for Standards and Technology and NIST Director, welcomed the NCSTAC members to the meeting, stated that he values the input they provide and depends on their participation, and thanked them for their service. Dr. May pointed out that NIST disaster resilience work was included in the President's FY16 Budget request to Congress.

Alice McKenna, Senior Counsel, General Law Division, Department of Commerce (DoC), gave an overview of the Federal Advisory Committee Act (FACA) and how it relates to legal requirements for NIST and the NCSTAC. The pillar of the act is transparency and openness. There are specific requirements for forming and convening a meeting of the AC (e.g., 30-day public meeting announcement, open attendance at meetings; closed sessions must be pre-approved by the Commerce Department). Except for specific information (e.g., personal or proprietary information) all information communicated during open meetings is summarized in the public record. Ms. McKenna noted that draft reports of the AC are not required to be made public, but final reports are releasable.

Dr. Howard Harary, Director, NIST Engineering Lab and the Designated Federal Officer for the NCSTAC meeting, reported on NIST's responses to the 2013 NCSTAC recommendations in their 2013 report to Congress. He stated that a special project was created and funded through the laboratory office specifically for implementing the recommendations made in NIST's Joplin tornado investigation. This work is going well and is being carried out as part of an overall strategic plan and in close coordination with other federal agencies and codes and standards organizations. He indicated that there would be a detailed presentation to the Committee later in the day.

There was extensive discussion about the scope of recommendations from the Committee. For example, the Committee's previous WUI recommendations were described by DoC attorneys as being outside the scope of the Committee. NIST officials noted that while they would not necessarily respond to recommendations that were outside of the Committee's scope, NIST did not want to discourage the

NCSTAC from making recommendations that they believed were worth considering – and NIST would make a decision regarding the appropriateness of responding.

A Committee member asked if it is their responsibility to review and comment on NIST’s research. *NIST responded that research is an important component of the agency’s disaster-related work, but outside of the Committee’s scope. Committee members were encouraged to review the NCSTAC Charter provided to them. That would help to explain why the Committee’s recommendation #3 on WUI fires, which is related to research, is considered out of their scope.*

Melissa Lieberman, Deputy Chief Counsel for NIST, stated that this not a clear area, but that NCST teams conduct investigations. She requested that the Committee focus their comments on investigation-related procedures and on investigations, along with related work including what teams might do with the funding and how training is addressed. She reiterated that if there is a matter that the Committee considers to be important, it should make the recommendation and NIST will sort out whether it falls under the NCSTAC’s Charter. She stated that NIST appreciates the Committee’s interest.

The Chair commented on how confusion on this issue had led them to recommend to NIST that the NCST Act should include lifelines; it was a good idea, but should not have been addressed to NIST. *NIST agreed that this recommendation should have been directed to Congress.*

The Chair suggested that they could use their annual report to Congress as a forum, although they now understand that they are limited in what NIST can address -- and perhaps they should differentiate to whom (NIST or Congress) they are making recommendations.

In response to the Joplin Recommendations, the Committee asked if NIST thought they would get adequate response with standards development organizations’ consensus processes. *NIST responded that they have a good track record of moving forward, they have been pleased with previous outcomes, and expect a similar outcome regarding Joplin.*

The Committee stated that it seems that it is up to NIST to accept or not accept a standard or code organization’s recommendations. *NIST responded that NIST does not have regulatory authority, and NIST is committed to the consensus process and will be diligent in working with others so that an appropriate standard results.*

The Chair stated that this conversation has clarified what the Committee does and what it can expect. *NIST encouraged the Committee to keep this dialog open.*

A Committee member asked for a clarification. NIST gives presentations to the NCSTAC on research it has done; does NIST want them to comment on this research and make recommendations? *NIST responded that NIST does not want to constrain the Committee or give them unnecessary work. By all means, offer comments, even if recommendations are later deemed out of scope.*

II. Presentations on Fire Investigations

Anthony Hamins, Nelson Bryner, and Craig Weinschenk of the NIST/EL’s Fire Research Division gave presentations on EL’s Fire Investigations.

Hamins presented an overview of recent NIST fire investigations. NIST has conducted about 30 fire investigations over the last 30 years. Two of those have been conducted as part of the NCST. Hamins stressed the scope of various government organizations involved in fire investigations. The National Institute of Occupational Safety and Health (NIOSH) conducts fire fighter line of duty death investigations. The Consumer Protection Committee (CPSC) conducts a limited number of fire investigations. NIST has collaborated with these agencies on a variety of projects. The data that firefighters report through the National Fire Incident Reporting System (NFIRS) is vital, and while it isn't perfect, it offers the best information available on many aspects associated with fire incidents in the USA. NIST uses NFIRS data to help prioritize its research.

The perishable nature of artifacts at a fire scene creates a challenge to gather the data for research before it is lost.

NIST's use of fire modeling as a forensic tool is a big part of how they are working to improve fire investigations to determine how fire spreads, but there is much to learn. It is also useful in establishing the fire timeline. With regards to wildland-urban interface (WUI) fires, data is very limited and this field is in its infancy. The complexity and scale of fire incidents in the WUI makes it an especially challenging field of endeavor.

A Committee member asked if NCST investigations are longer or more informed than non-NCST investigations. A discussion followed about the degree of overlap and difference between NCST and non-NCST fire investigations.

NIST agreed that the scope of work for any investigation needs to be carefully defined and that it does not need to take years for all investigations. NIST also noted that there is a degree of overlap between the different types of fire investigations that NIST may conduct. The NCST Act does give NIST some important authorities that may help in data collection. Criteria have been established to determine the scope of an investigation and whether an incident warrants a full NCST investigation. NIST's two NCST fire studies were based on large events.

The Committee asked about their 2013 report to Congress and recommendation #3 (on WUI fires) and why this recommendation were not accepted by NIST.

NIST clarified that this again related to the scope of the Committee's charter and what they are recommending to NIST. For NIST to officially respond to the Committee's recommendation, it must relate to a specific NCST investigation or to NIST's activities that relate to those investigations. NIST assured the Committee that, while NIST does not respond to recommendations that are outside the scope of the Committee's charter, NIST heard and understood all recommendations.

The Committee asked if they should make a recommendation that NCST teams conduct research. *NIST responded that NCST teams generally do not conduct research.*

The Committee asked if they can they make a recommendation that NIST conduct specific research. *NIST responded that the Committee could do that if it came out of their review of an NCST study.*

The Chair stated that the discussion makes it clear that the Committee will need to articulate their recommendations differently and then NIST may be able to respond. Otherwise, they will be recommendations for Congress and have a limited chance of being picked up. *NIST noted that recommendations need to be stated in a way that NIST can officially respond to them based on the NCST Act.*

Bryner presented on WUI Fires - Data Collection and Case Studies.

He noted that data collection is not typically considered a first responder responsibility and firefighters are not trained on data collection. State-controlled WUI fires typically do not have data collected on them and NFIRS (USFA) only collects data on 44% of all fires, both structural and WUI. (It is voluntary, except when a federal grant is received and then it is required.) WUI fire data typically are not captured in NFIRS, which is structure-centric and not designed to look at interactions among structures. That means WUI reporting does not capture terrain data, and weather typically is stated for just a single data point for the entire fire. There is a need for an incident or community-centric data system that can capture the data in other than the traditional building-centric way.

Automatic Vehicle Locations (AVLs) are relatively new and are transponders on all fire apparatus that can be tracked. The Incident Command Center did not appear well-coordinated in the Waldo Canyon fire and as a result was sending units to staging locations first, even as structures were burning. A pre-plan for a WUI fire is needed so that staging can be skipped in light of the fact that there is no time to waste.

Embers are a major issue that is not yet widely recognized or understood. Ember ignition of wood decks, grass under or near structures, and fences are sources of fire spread to a structure.

A Committee member stated that many code changes have been made and asked if NIST was aware of the code developed by the International Wildfire Council. The member expressed uncertainty about the value NIST was going to gain out of a WUI analysis and asked if NIST researchers are collecting data unnecessarily when the improved “rules” related to WUI are already in place.

NIST responded that fire codes do not consider embers, and that embers are critical. The results of NIST research will be propagated to standards and codes organizations. The Ready-Set-Go (100 ft./30 meters zone) is popular. This may work for a crown fire, but not for embers -- and it is embers that start most WUI-related structural fires. Embers initiate from vegetation and then spread to structures. The science base needs to be developed first and then put in the codes. Embers are involved with igniting fences, but that is not in the codes. Structures in WUI fires ignite and burn quickly. Buildings need to be hardened against ignition and fire spread. For example, there is no science yet on how far wood piles should be located away from homes to reduce fire risk. Organizations sometimes make recommendations to homeowners on how to harden structures that cost money, but which have no basis in science. NIST is trying to do the science to provide science-based guidance on how to best protect buildings and communities against WUI fires.

The Committee member agreed with the emphasis on embers, but disagreed with the assertion that the codes are not adequately addressing the hardening of structures.

The Committee stated that there appears to have been mismanagement among incident responders in at least one event that was investigated by NIST, and suggested that this would be a good issue for NIST to follow up.

NIST responded that there is no organization/agency that is looking at fire service coordination and cooperation during a WUI fire and who directs actions between private and public fire responders. Staging could be delaying action and poor coordination among responders could contribute to less than optimal responses. NIST is not an expert on WUI firefighting operations.

The Committee asked if they can make a recommendation on who should address WUI fires.

NIST reiterated that it is the Committee’s decision as to whether they wish to make recommendations; how NIST responds is dependent upon the scope of the Committee’s charter.

The Chair asked if NIST is able to differentiate between sizes of embers and if they have a metric for doing that.

NIST responded that NIST needs more ember data; NIST has an ember generator that is capable of providing a controlled flux of burning embers. Collecting ember data during actual WUI fire events would be very useful, but NIST does not have the data now.

Weinschenk described recent Chicago and San Francisco structure fires that were studied using NIST's Fire Dynamics Simulator fire model.

NIST strives to rapidly disseminate its findings to firefighters, fire protection engineers, and the research community. NIST has created YouTube tutorial videos that have been viewed many times. NIST recommendations are already being implemented by the cities of Chicago and San Francisco. Doing incident studies improves NIST's modeling, too. Through its modeling and related videos, NIST seeks to dispel myths held by firefighters. One example studied and described by NIST noted that firefighters did not put water on the outside of a house for fear that it would push the fire inside – an erroneous assumption. Consequently, the fire spread rapidly and killed several firefighters. NIST also is attempting to make it more widely understood that firefighters should not fight a blaze from the floor above the fire; it should be fought on the same floor as the fire is located. San Francisco has now changed their tactics to fight fires this way. Recognizing that ventilation changes such as windows failing is critical. NIST is trying to educate firefighters about this; having visual models helps with communication. NIST's special expertise of developing and using fire models gives them a unique point of view. Understanding how quickly a fire changes in flow paths and how it puts firefighters at risk is critical. Another issue is the importance of preplanning, so that firefighters understand a structure and can handle multiple reactions at one time. The progress on these fronts helps safety for both firefighters and civilians.

The Committee had an extended discussion with NIST staff about the validity of NIST's fire research models and statements about their use in analyzing specific fires and in making recommendations. The NCSTAC expressed concern that NIST may be developing fire modeling on the fly and that insufficient validation was being performed.

NIST disagreed, stated that their fire model is validated, and affirmed that the code is verified and compared to many experimental data points. NIST said that this work was thorough and rigorous, and not ad hoc. The verification and validation guides are publically available on the NIST website.

The Committee said that NIST should be careful, stating that the combustion model is simple and has limitations -- and that doesn't mean that it can predict any case.

NIST responded that the combustion model has come a long way, even though it still has limitations. NIST also emphasized that NIST does not make claims regarding the model that beyond its intended scope.

After further discussion, the Committee concluded that NIST has done a good job of improving verification and validation, but there is some concern about how the model is used in practice.

III. Community Resilience Center of Excellence

Terri McAllister, Group Leader of NIST's Community Resilience Group presented on the Community Resilience Center of Excellence (CoE). Resilience was defined as the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. In the context of community resilience, the emphasis is not solely on mitigating risk, but on implementing measures to ensure that the community recovers to normal, or near normal function, in a reasonable timeframe.

NIST has three objectives for the CoE. The first is to develop an integrated, multi-scale, computational modeling environment (NIST-CORE) for community systems to support development of new standards

and tools for assessment and decision-making. The second is to foster the development of data architectures and data management tools to enable disaster resilience planning. The third objective is to conduct studies to validate resilience data architectures, data management tools, and models.

In February 2015, NIST awarded a \$4 million/year cooperative agreement for 5 years, renewable for a total of 10 years. The center is led by Colorado State University and involves nine other universities. This is a new undertaking and the CoE is at the beginning stages. They are focusing on the built environment at the community level.

The Chair asked about the point of intersection between this CoE project and the scope of the panel and the NCST teams?

NIST said that NCST teams need better ways to collect and store data. The center will conduct a parallel effort focused on understanding what kind of data needs to be collected and what kind of tools are needed. Disaster investigators are beginning to think more broadly about the resilience of entire communities, not just individual structures.

The Committee asked how the center will differ from other centers, including the MCEER that focuses on earthquakes. Does the NIST-funded center differentiate itself by being broader?

NIST responded that they are aware of other centers, but there is little research that is focused on physical infrastructure, especially with regards to community resilience. Furthermore, NIST's center is looking at multiple hazards, not just earthquakes.

The Committee expressed concern that the center has a very small amount of funding compared to other funded efforts, and asked if NIST could do all this with the level of funding provided.

NIST responded that NIST does not want to duplicate what others are doing (e.g., mitigation and emergency response) and the NIST modeling effort is focusing on integrated systems aspects. The CoE will start small (e.g., power and water) and figure out how to model those systems and then add other systems. The CoE will characterize how buildings and infrastructure systems would perform and recover for any hazard.

The Committee expressed concern about using HAZUS as it is outdated.

NIST responded by assuring that NIST was not going to start the modeling process with HAZUS.

The Committee asked about the archiving of data and if NIST sees interaction with its ongoing data collection efforts.

NIST responded affirmatively. NIST is hoping the center will be informed in part by what NIST and others have done. In turn, the CoE's work also will help NIST and others' efforts in this area.

The Committee expressed concern that the University of Illinois supercomputing facility was relied upon by others in the past, but that after years of funding, the outcome was neither good nor user friendly. The Committee commented that university supercomputing centers are typically focused on research and suggested that NIST be mindful of that.

NIST responded that the nature of the funding vehicle ensures that there will be close oversight.

IV. Progress on Implementation of the Joplin Tornado Recommendations

Dr. Long Phan, Acting Director, Disaster and Failure Studies Program and Dr. Marc Levitan, Lead, National Windstorm Impact Reduction Program (NWIRP) R&D, presented on the Progress on the Implementation of the Joplin Tornado Recommendations.

Phan opened the session by describing the 4 areas covered by the 16 Joplin recommendations, all of which had received positive responses from respective lead organizations. He reviewed the special project that was funded by NIST/EL immediately after the conclusion of the Joplin tornado investigation in March 2014 to implement the recommendations, and the results to date on each, providing details, beyond the information presented earlier.

The Committee asked whether the recommendations have been well received.

NIST responded that they have been received very well. NIST has met with the key organizations that are designated Lead agency for implementation of respective recommendations and are capitalizing on the momentum. NIST has been very encouraged by how interested and cooperative these Lead agencies were in carrying out the implementation of Joplin recommendations.

Levitan reported in more detail on the recommendations, differentiating between those in progress and those in the planning stage. He provided a detailed progress update on the work on the majority of recommendations.

The Committee asked for clarification on the code change process for storm shelters. The proposed code change does not expand on the requirements for which occupancies must have storm shelters. Why doesn't NIST push for this?

NIST responded that it was a tactical decision made after consultation with FEMA. NIST noted that this decision took into account that some community members would be especially concerned about cost. Still, significant headway will be made with the existing language and additional changes can occur in future code cycles. NIST clarified that they are not recommending that standards and codes for existing schools include provisions to require building a new shelter; if a new school is being constructed or an addition is being built onto an existing school, new standards and code requirements would apply.

The Committee asked how communities will handle the cost problem. If there is a perception that a tornado is not a major risk for them, there likely will be resistance to it.

NIST responded by suggesting an incremental approach.

The Chair asked what it would cost to build shelter spaces like this per square foot.

NIST responded that the cost is about 25% more for a gym to be hardened as a shelter, but that the cost increase for that component would only be a small percentage increase (likely 2-3%) for an entirely new school.

V. NCST Act Implementation

Jason Averill, Chief, Materials and Structural Systems Division, presented an overview of recent changes to NIST's implementation of the NCST Act.

He reviewed NIST's multiple statutory authorities for conducting investigations, emphasizing that NIST uses multiple authorities to get the job done. Averill noted that NIST is the interagency lead for the National Earthquake Hazards Reduction Program (NEHRP) and is also involved with the National Windstorm Impact Reduction Program. NIST has significant authorities under the agency's Organic Act.

NIST has combined their structures and materials divisions due to natural synergies. The community resilience effort is new undertaking for the division; NIST is taking a much broader view, beginning with social needs and how the built environment relates to that resilience. NIST will release a draft Community Disaster Resilience Framework on April 27 for public comment, and individual Committee

members are encouraged to review and comment as individuals. Additionally, NIST will develop Community Resilience guidelines to help communities to implement that framework.

The Disaster and Failure Studies Program (DFSP) helps to verify that these approaches and guidelines are appropriate. The new Center of Excellence will contribute to that program. NIST made some organizational changes to carry out this approach. That includes relocating the DFSP into the Community Resilience Group. NIST also formalized the transition of this effort beyond life safety to also encompass social functions that underlie the needs of the built environment. The process for making decisions about deployment and possible launch of an investigation was reviewed based on a standard operating procedure that includes quantitative and qualitative criteria and recent disaster events. NIST criteria scores were reviewed.

The Committee asked for clarification about the NCST team's conduct of research.
NIST responded that a team could 1) conduct research if it related specifically to that investigation and/or 2) recommend areas where research should be conducted.

The Chair asked whether NIST would have investigated several of these disasters if more funding were available.
NIST responded using the Oso, Washington landslide event as an example and said that there would have been opportunities to learn more, although they don't think there is much NIST could do for a landslide.

The Chair asked if a lower-rated failure could be investigated if there was more learning to be gained.
NIST responded affirmatively.

The Committee asked if the frequency of an event is a consideration; for an example, a landslide is rare.
NIST responded that it was a consideration.

The Committee asked if NIST has considered investigating the recent Brooklyn house fire.
NIST responded that they have not, but perhaps they should consider this event.

The Committee asked if there is a roadmap for how NIST implements the recommendations from its investigations.
NIST responded that there is a well-defined process. They start by working with codes and standards bodies, NIST staff, and others. NIST gives consideration to how its recommendations can be addressed in a realistic timeframe. For example, much may depend on where a standards or code organization is in their cycle.

Averill addressed the importance of assessing expected hazards at a disaster scene and considering the safety of teams that might be deployed. He welcomed information from the Committee about how others take safety into account in deployment decisions, saying that this type of information might be useful for NIST to consider. He noted that NIST is customizing its training for investigations staff to ensure appropriate preparedness of "hot team" members. At present, everyone receives all safety training; changing that approach to more specific training matched to the team member's actual role is underway. He also addressed data collection skills and personal protective equipment-related aspects of NIST investigation teams.

The Committee stated that NIST should put greater emphasis on teaming with others in dangerous environments if that is what stands in the way of deciding to do an investigation or not.
NIST responded that they have partnered with FEMA in the past when that has been an issue. NIST will not send people to a disaster site if it is not deemed safe, and that is a determination NIST must make for its own staff.

The Committee stated that it appeared NIST was placing greater emphasis on the team rather than on the event. If there was an event that they could learn from and everything on the criteria checks off except safety, they would think NIST would bend over backwards to go.

NIST responded that they would seriously consider this as part of the decision-making about whether or not to launch an investigation, but that safety would remain a key factor.

VI. Disaster Data

Dr. Long Phan, Acting Director, Disaster and Failure Studies Program presented an update on the data repository development for the Joplin/Moore tornados and the Chile earthquake.

Phan described the current status, including recent progress, and demonstrated the two web-based “hubs” that NIST has been working on to date: the Joplin tornado and Chile earthquake data repositories. His demonstration illustrated the variety of features of the repository’s architectures and their easy-to-use search and display features. He explained similarities and differences in the two data hubs. The Joplin hub has more than 20 data fields while the Chile hub has more than 100 data fields. The idea is to make the data repositories simple and standardized so that they are easy to use.

He further described work that needs to be done before the hubs can be made available to the public and expects that these two databases and the Moore hub to be available by the second quarter of FY2016. The Moore hub will help to run a test case about the ease of creating the database. The process to date and long-term strategy were described, including the issues raised by the Committee in 2013 regarding repository management and the balance between accessibility and a NIST-centric-federated environment. Phan noted that there would be discussion with the newly established CoE with regard to these big-picture questions.

The Committee asked if NIST was taking into consideration the issue of repository data management. Is it just NIST data or other’s data? What is the standard? Does it need to be validated? Who does the validation? How are they going to deal with the ballooning information?

NIST responded that they are still dealing with this issue and are trying to find a solution; the immediate need is to get its information into the database. Going forward, NIST wants to come up with an acceptable solution by conferring with others, including the CoE.

The Chair stated that he thought that this effort looks good and seems to be working well, but an obstacle to availability is that it is taking so much time. He asked about plans to build a “blank” hub that constrains the insertion of new data into this format by others. Are they going to try to build a standardized template that makes it easier to use?

NIST responded that they are doing that, but taking a methodical approach; current work is a step towards a template for the public to use.

The Chair asked NIST if they plan to provide a credential to “qualify” someone who wants to enter data vs validating the specific data to be entered.

NIST responded that they have not worked that out yet.

The Chair asked if they recommended qualifying individuals and letting them post without verifying actual data as it would be better to have more data from reliable sources than less data that NIST has screened.

NIST responded that they might do that, but have not decided yet.

The Chair asked if the bugs are worked out and tornado data have been collected, three years from now could an approved contributor log on and pull up a blank tornado template? Is that the plan? *NIST responded that yes, eventually they want to develop a template that both NIST and the public can use.*

The Chair offered his opinion that if someone qualifies as a user, NIST should trust their data. Screening of the contributor, rather than screening the data, seemed appropriate. *NIST responded that they have not gotten to that point. Ideally they want to be able to validate the user and have trust and confidence in them. They need a process to validate users.*

The Chair stated that it was important to make sure there are no rogue contributors, but that NIST should make it easy for data to be added.

The Committee asked who provides quality control of the information that is disseminated. The Chair responded that a user would be at their own risk of using “garbage” data, but that it is better to have more data from reliable sources than less data from what NIST has directly experienced. There are no guarantees in databases.

The Committee mentioned that Wikipedia is a good example of this. Twitter data may also be very helpful as it has been used in Japan, where ground-shaking estimates were, in some cases, better than those gained via simulation.

The Chair and committee gave a positive review to the progress NIST has made and are looking forward to NIST’s future collaboration with others on the data repository.

VII. Advisory Committee Discussions

The Chair opened the Advisory Committee discussion portion of the meeting and asked the Committee to comment on possible recommendations for its annual report to Congress.

Data Repository:

The Committee discussed the data repository and its eagerness to get it to the public as quickly as possible, including encouraging NIST to consider easing up on the requirements for admitting data into the repository. Wikipedia could be a possible model to follow, as public comments can be added. Members opined that all data collected should be put in the repository. Moreover, if NIST deems an event important enough to send a team, then it is important to have a hub on that investigation.

The Chair expressed his support of the idea of screening a contributor and then allowing/accepting them to contribute what they want, opening that section of the repository to comments and review by anyone. The Committee stated that it would be important to make it clear what was and was not vetted.

Center of Excellence:

The Committee discussed the CoE and whether to advise NIST regarding concerns that the agency should not duplicate what others are doing on resilience (e.g., Rockefeller Foundation). Members asked if enough work has been done to ensure that the CoE isn’t duplicating anything else. *NIST responded that there are complementary – but not duplicative -- issues being address by other organizations.*

The Committee encouraged NIST and the CoE to pay close attention to what has been and is being done at earthquake centers and elsewhere before finalizing its research plan. Members applauded the due

diligence that has been done to date to ensure that there is clarity and uniqueness in what the CoE needs to address and NIST should continue to do that.

The Chair asked the Committee if it is persuaded enough that work done on the CoE is not duplicating anything else. The Committee agreed that NIST's work is not redundant.

Community Resilience Planning Guide (Guide) for Buildings and Infrastructure:

The Committee requested that its members be provided with copies of the Guide for comment when it is released to the public.

WUI:

The Committee discussed WUI and said that NIST should be cognizant of the international code covering WUI, and be mindful of efforts elsewhere, including in California. Noting that data gathered from fire investigations can mitigate shortcomings in the future, the Committee agreed that NIST should consider including WUI data in the NIST data repository.

The Committee commented that NIST's research on embers is very valuable and will provide good criteria for building standards and codes.

Fire Modeling:

The Committee discussed NIST's large amount of work with fire modeling and expressed concern not with how experts use it, but with how people in the field will use it.

NIST responded that other companies have developed the front end and are making it easier to use what NIST developed.

The Committee asked who has access to the software, expressing concern that it is widely available and that could cause trouble if people who do not understand how to use the software model have access to it. *NIST responded that every model has these issues and that there is not much more that NIST can do to address this point. Users assume responsibility for implementation and interpretation of models.*

The Chair solicited comments from the Committee on deploying investigation teams, suggesting that waiting 72 hours to respond was too long since critical information is perishable. They are unclear on what they will say in their annual report regarding this aspect of NCST Team deployment criteria.

The Chair closed the meeting by thanking the Committee for their assistance in arranging this meeting and stated that they were very impressed with the progress that NIST has made.