IHMC Board of Directors Teleconference Meeting

Monday, September 15, 2014

8:30 a.m. CST/9:30 a.m. EST Meeting

Roll Call	Chair Ron Ewers
Chair's Greetings	Chair Ron Ewers

Action Items

1.	Approval of June 23, 2014 Minutes	Chair Ron Ewers

Chief Executive Officer's Report

1.	Discussion of Pensacola Flooding and Expansion	Dr. Ken Ford
2.	Discussion of Ground Floor Renovation in Ocala Bldg	Dr. Ken Ford
3.	Update on IHMC Foundation	Dr. Ken Ford
4.	Research Update	Dr. Ken Ford
5.	Federal Legislative Update	Dr. Ken Ford

Other Items

Adjournment

IHMC Board of Directors Meeting
Monday June 23, 2014
8:30 a.m. CST Meeting; 9:30 a.m. EST

Roll Call	Chair Glenn Sturm
Chair's Greetings	Chair Glenn Sturm

Action Items

1.	Approval of February 10, 2014 Minutes	Chair Glenn Sturm
2.	Election of Board Officers for 2014-16	Chair Glenn Sturm
3.	Adoption of 2014-2015 Meeting Schedule	Chair Glenn Sturm

Chief Executive Officer's Report

1.	Discussion of Pensacola Flooding and Expansion	Dr. Ken Ford
2.	Discussion of Ground Floor Renovation in Ocala Bldg	Dr. Ken Ford
3.	Research Update	Dr. Ken Ford
4.	Federal Legislative Update	Dr. Ken Ford
5.	Research Demonstration	Dr. Ken Ford

Board Photograph
Lunch
Adjournment

IHMC Chair Glenn Sturm called the meeting to order at 8:30 A.M. CST. Directors in attendance included: Dick Baker, Lewis Bear, Carol Carlan, Bill Dalton, Ron Ewers, Eugene Franklin, Eric Nickelsen, Alain Rappaport, Jim Reeves, Martha Saunders, Gordon Sprague, and Glenn Sturm. Also in attendance were Ken Ford, Bonnie Dorr, Pam Dana, Sharon Heise, Row Rogacki, Phil Turner, Ronnie Armstrong, Alan Ordway, and Julie Sheppard.

Welcome to everyone who is here this morning and thank you to those of you who were unable to attend in person but have dialed in this morning. We had a great dinner and conversation last evening with Chef Blake Rushing and his award winning food at his new restaurant TYPE. I hope everyone enjoyed it….

With those comments, I would like to move directly into our meeting. We have 3 action items to discuss this am followed by Dr. Ford's presentation, a presentation by Dr. Bonnie Dorr, our new Senior Research Scientist that I hope many of you got the chance to meet last evening. After Dr. Dorr's talk, we will be visiting the Wright Street Robot lab to meet the newest robot and then return for a board photograph and lunch back at IHMC.

Chair Sturm introduced Action Item 1, the approval of the February 10, 2014 minutes. Director Bear made a motion to approve the minutes that was seconded by Director Baker. Hearing no objections or discussion, the motion was unanimously approved.

Chair Sturm then introduced Action Item 2, the Election of a Chair and Vice Chair and commented that it is hard to believe that 2 years have gone by so very quickly adding that he has greatly enjoyed the opportunity to be IHMC Board Chair. He mentioned that much has been accomplished these past 2 years including the refinancing of the facility, borrowing for the new building, establishing the Foundation, waterproofing and expanding the Ocala facility and more and that it is with pleasure that he seeks nominations this morning for the Chair and Vice Chair for 2014 to 2016 term. Director Sprague made a motion to nominate Director Ron Ewers for Chair and Director Bill Dalton for Vice Chair. The motion was seconded by Director Carlan and was unanimously approved by the full board. Directors Ewers and Dalton agreed to serve and thanked the Board for their vote of confidence.

Chair Sturm then introduced the final action item, Action Item 3 setting forth a draft 2014-15 meeting schedule adding that these proposed meeting dates have been reviewed by incoming Chair Ewers. He read off the following proposed dates as a teleconference call at 8:30 am central time on Monday, September 15, 2014; a teleconference call at 8:30 central time on Monday December 8, 2014; an in person meeting in Ocala on Monday, February 9, 2015 from 8:30 to 12 eastern time with a social dinner the prior evening Sunday, February 8, 2015; and an in person meeting in Pensacola on Monday, June 8 from 8:30 to 12 central time with a social dinner the prior evening Sunday, June 7, 2015. Director Nickelsen made a motion to approve the suggested schedule and this was seconded by Director Franklin. The proposed agenda was unanimously approved without discussion or amendment.

Chair Sturm then thanked the Board for the opportunity to serve as Chair and asked Dr. Ford to provide his report. Dr. Ford welcomed everyone and thanked them for the opportunity to provide his report adding that he hoped everyone enjoyed TYPE and Chef Blake Rushing's food last night.

Dr. Ford began his remarks by thanking Glenn Sturm for his service these past 2 years as Board Chair adding that Glenn has been a driving force in helping IHMC with issues such as long-term viability, retention strategies and fundraising. Dr. Ford made a gift presentation to Chair Sturm and the Board congratulated Chair Sturm on his leadership. Dr. Ford continued his comments by stating that he was looking forward to working with Chair Ron Ewers and Vice Chair Bill Dalton over the next 2 years.

Dr. Ford then turned to the facilities report explaining that first and foremost this morning, he wanted to provide an update on the state of the IHMC's facilities. With regard to Pensacola, he mentioned that as anyone can see who visits this building, IHMC is still recovering from the flooding of April 30, 2014 in which 3 of our 5 facilities received flood damage sufficient for us to be unable to work in them. He added that the short story is that on April 29th and into the morning of the 30th, with the ground already saturated from heavy April rains, Pensacola received in excess of 26 inches of rain in a 24-hour period. This deluge, he continued, coupled with Pensacola's old and inadequate drainage system led to widespread flooding on a scale not previously seen.

Dr. Ford continued by stating that on the morning of April 30, we found water in 4 of our buildings with 127 S. Alcaniz, which houses our business office functions, receiving over 8 inches of water and destroying some furniture and many files. He stated that this building is undergoing major renovation including hardwood floor and sheetrock and carpet removal. He continued by discussing the robot lab and associated office spaces at 100 S. Alcaniz adding that both buildings had water immersion with the office space having water also come in through exterior outside walls. He mentioned that IHMC was able to clean the robot lab without much fanfare as it has concrete floors and is an interior location but that the office spaces suffered more substantial damage and are still undergoing renovations.

Dr. Ford then turned to 40 S. Alcaniz, the main IHMC building, at 10 feet above sea level and 3.5 feet above base flood elevation for its location, explaining that the building experienced about 8 inches of water throughout the ground floor. He continued by stating that IHMC is currently working with Restore One, a general contractor and disaster recovery specialist to completely redo the first floor and that we are also exploring flood proofing and other mitigation opportunities with FEMA. Dr. Ford added that also destroyed in the flood was one of the IHMC vans, and numerous employees' cars that were in the parking lots at 40 and 127 S. Alcaniz St.

The good news, added Dr. Ford, is that IHMC had owner's flood insurance on this building, and renter's flood insurance on the others but that the more difficult news is that this flood insurance does not cover business interruption or business relocation expenses or document restoration and cleanup.

Dr. Ford mentioned that IHMC is filing for unreimbursed costs with FEMA and a motion was made and seconded and unanimously approved by the Board to allow Dr. Ford as IHMC CEO, Julie Sheppard, IHMC General Counsel and Corporate Secretary, and Ronnie Armstrong, IHMC Controller to file any and all documents on behalf of the Board of Directors necessary for insurance and FEMA recovery and mitigation.

Dr. Ford then turned to the expansion efforts in Pensacola, stating that we have put this project on hold in light of the recurring flooding downtown coupled with the lack of any public commitment by the City to improve the situation. Simply put, he added, our current design and location would have been in danger of flooding if built as it is designed at an elevation of 12 feet above sea level and 5 feet above base flood elevation, and thus it is unclear whether water would have entered the building. He mentioned that we were at 95% completion of architectural documents and in the process of receiving bids from the 4 GC's that pre-qualified to bid, but that in a prudent and conservative manner, IHMC is also exploring alternate locations. Dr. Ford stated that to simply raise the building is not an option for several reasons, in that it would make IHMC exceed the height limitations for the third story as designed under the current architectural review board height limits, it would create an aesthetically unpleasing look at street level, and it would remove the ability for garage door bays to access the robot lab and move big equipment thus we are on hold at this time.

Dr. Ford wrapped up this discussion by stating that while the recent rain event was certainly extraordinary, it was far from the first time we have experienced damaging flooding at IHMC and that downtown should not be Pensacola's storm water retention pond. In very hard rains, the current drainage system delivers what one local leader has called the storm surge from the North. He added that to move forward without a clear public commitment to improve an obviously dysfunctional drainage system would not be rational and that our expansion in Pensacola is on hold until we can be confident that the flooding problem is being addressed commenting further that it is critical to the success of Pensacola that storm water drainage improvements are made. He acknowledged that any effective solution will be expensive, but not as expensive as maintaining the status quo and that IHMC is hopeful that the city and county will work together to remedy this barrier to Pensacola's economic success.

Director Nickelsen asked Dr. Ford how the IHMC Board could help and a general discussion ensued with a general agreement that the solution lay with an integrated approach between the city and county and the agreement from local board members to seek a commitment from the county and county to fund a solution. Dr. Ford ended the discussion by informing the Board that David Waggonner would be speaking on July 16th in Pensacola adding that Waggonner was the architect of the integrated citywide storm water plan adopted in New Orleans after Katrina.

Dr. Ford then turned the discussion to Ocala asking Phil Turner to provide his report. Phil thanked Dr. Ford and began discussing with the Board the efforts underway in Ocala to repair deficiencies and develop the lower, below grade, floor of that building. Phil explained that the waterproofing of the Ground Floor is underway and currently two weeks ahead of schedule with the contractor providing excellent service and communication and being very responsive to IHMC staff regarding noise issues and logistics. He mentioned that the project is currently scheduled to be completed by September 2014 and will also include replacing the landscaping disturbed and providing an enhanced landscape design. He continued by discussing the Ground Floor Partial Renovation stating that this project is in the final stages of design and will include offices, open work spaces, a large Cyber Lab/Conference Room, an exercise room, enclosed storage areas, and relocate the Smart Home Lab. Phil explained that this project will also provide a more attractive floor material for general use in the large open area and will be accomplished by the contractor currently working on the waterproofing project. Dr. Ford thanked Phil for his report.

Dr. Ford then turned to Pam Dana and asked her to update the Board about this year's legislative session adding that IHMC had a successful session and received an additional $900K to assist with the waterproofing and ground floor build out in Ocala. Pam talked generally about the session, the support received by IHMC from the statewide delegation and the leadership from Senator Gaetz. She also credited the IHMC statewide legislative team for their efforts along with Director Reeves and Director Ewers and suggested that throughout the state, IHMC has built a solid reputation for producing good results and that has been of considerable worth in Tallahassee. Dr. Ford thanked Pam for her report.

Dr. Ford then turned to the federal arena mentioning that he was recently in Washington meeting with many of the senators and representatives and their staff on the Hill and that it is safe to say that IHMC has very good relationships with our D.C. delegations. He mentioned that federal R&D budgets continue to be relatively strong given the overall economic climate both here and abroad.

Dr. Ford then turned to his research update, mentioning that this is his favorite part of the meeting. He stated that as funding agencies continue to adjust to an increasingly austere federal funding climate, IHMC researchers continue to find new opportunities, make new partnerships, and solve problems of interest to customers. He informed the Board that since our last board meeting in February, IHMC has received over $1.5M in new funding, and nearly $7 million of approved new funding in the negotiation process and indicated he would share information about just a few of these new efforts.

He discussed that Drs. Anil Raj and Peter Neuhaus were recently sought out by U.S. Special Operations Command (SOCOM) to support rapid prototyping of the Army's Tactical Assault Light Operator Suit, or TALOS, a robotic exoskeleton that would provide the wearer with full-body armor, situation awareness displays, and other features to improve efficiency of movement and protection against injury. Dr. Ford added that both Anil and Peter have been serving as subject matter experts on the TALOS project due to their experience with the design and implementation of bipedal exoskeletons and collaborating with the SOCOM team to review relevant technologies, provide insight regarding control and interface strategies, and identify technology gaps. He mentioned that this has been a concentrated eight-week effort with both Peter and Anil spending a significant amount of time in Tampa during April and May, on-site at SOCOM headquarters at MacDill Air Force Base.

Dr. Ford mentioned that Dr. Jeff Bradshaw has been funded by a private-sector firm to explore advances in biostorage using the IHMC KAoS policy services framework for new policy representation and reasoning strategies in the ultra-low temperature freezer technology domain. Dr. Ford noted that Biological sample management is new to IHMC but that we are excited at the opportunity to contribute to this health research domain.

Speaking of new application domains, Dr. Ford discussed a new project with the National Center for Food Protection and Defense (NCFPD), a Homeland Security Center of Excellence that addresses the vulnerability of the nation's food system to attack through intentional contamination with biological or chemical agents. Dr. Ford explained that NCFPD has initiated a new collaboration with IHMC and Dr. Bradshaw's team on tools and strategies for monitoring and protecting critical food supply chains that involve combinations of cyber and physical risks. He added that it is anticipated that portions of IHMC's Sol cyber framework will be extended and adapted as part of this effort.

Turning to pending awards, Dr. Ford mentioned that he would save all but one of those for the next meeting, but mentioned that a research team led by James Allen will be receiving roughly $3M from DARPA for new research in the area of Big Mechanisms. Dr. Ford explained that Big mechanisms are large, explanatory models of complicated

systems in which interactions have important causal effects and that while the collection of big data is increasingly automated, the creation of big mechanisms remains a human endeavor made increasingly difficult by the fragmentation and distribution of knowledge. He stated that the extent to which the construction of big mechanisms can be automated could change how science is done and that in this effort, James and a team of researchers from IHMC will be developing natural language processing technology to read research abstracts and papers to extract pieces of causal mechanisms, assemble these pieces into more complete causal models, and reason over these models to produce explanations. He concluded his discussion on this project mentioning that the domain of the program is cancer biology with an emphasis on signaling pathways and hence IHMC is partnering with our colleagues at the Moffitt Cancer Center. Dr. Ford explained that this was a nice application of AI work to an important field and that we value our work opportunities with Moffitt.

Next, Dr. Ford turned to Row Rogacki and asked him to supply an Ocala update. Row thanked Dr. Ford and updated the Board on activities in Ocala including the spring lecture series, the upcoming summer events including the robotics camp and the general issues involving noise levels during the construction process. Row invited all the Board members to stop in to the Ocala facility when they were in the area and thanked Dr. Ford for the opportunity to provide his report.

Dr. Ford thanked Row and turned the discussion to an upcoming award being presented to Senior Research Scientist Robert Hoffman who has been elected as a Senior Member of the Association for the Advancement of Artificial Intelligence. He remarked that Senior Member status is designed to recognize AAAI members who have achieved significant accomplishments within the field of artificial intelligence and that Dr. Hoffman will receive this honor at the Twenty-Eighth AAAI Conference on Artificial Intelligence (AAAI-14) on July 27–31, 2014 in Québec City, Québec, Canada. As an aside, Dr. Ford noted that Dr. Bonnie Dorr is also a Fellow bringing IHMC total to six.

Dr. Ford continued his comments on IHMC education and outreach efforts explaining that these continue to be very successful both in terms of number of participants and in terms of impact and began a general update. He explained that although scientific talks and lectures are a normal and expected part of conducting research at IHMC, public outreach talks are also encouraged where appropriate and that Veteran Shuttle astronaut Tom Jones, a senior research scientist at IHMC has been particularly active. He informed the Board that Tom was a featured speaker at the first-ever X-STEM: Extreme STEM Symposium in Washington, D.C., on April 24. Dr. Ford mentioned that this event was held at the Walter E. Washington Convention Center, and that X-STEM is a “TED-style” event for kids with talks by 50 of the nation's most noted science, technology, engineering and mathematics (STEM) professionals representing top universities, corporations, non-profits and governmental agencies. Dr. Ford added that on a local note, Tom paid a visit to "kids unlimited," a camp for underprivileged children in Pensacola, and spoke to them about his career and with the goal of lighting a motivational fire in some of the children with respect to science and technology and that by all accounts, including the Channel 3 coverage, Tom was terrific.

Dr. Ford mentioned that the Pensacola Robotics Open House was held on April 10th and was perhaps our best attended one to date with over 900 visitors to the Wright Street laboratory over a 4-hour period. He added that IHMC also hosted a student robotics event that day for high school and middle school students. Dr. Ford informed the Board that the Ocala spring Science Saturdays Series concluded on May 3rd with "Gloop and other Polymers," presented by Tom Eskridge and that this was, as one might imagine, a very hands-on topic, and the process of making and evaluating the two polymers was a highlight of this season. He informed the Board that this fall in Ocala, the schedule will be as follows: September 13th Candy Chromatography by Dr. Manal Fakhoury; October 11th Secret Codes by Dr. Micah Clark; November 8th The Gravity of It All by Dr. Row Rogacki and concluding on December 6th with Fun with Computer Science by Dr. Bonnie Dorr. He updated the Board that the final Science Saturday for the Spring Season in Pensacola was on April 19th with the topic "Mathemagic," presented by Dr. Jerry Pratt. He mentioned that the fall Pensacola calendar includes the following: September 27th Bottle Rockets by Dr. Pat Hayes; October 25th Chemistry, Dr. Pam Vaughan from UWF; November 22nd Balloon Cars by Dr. Chris Schmidt-Wetekam; and concluding on December 13th with Big Data by Doug Stephen.

Dr. Ford mentioned that IHMC is once again offering robotics camp for middle school students in Ocala adding that this will be our 3rd summer hosting the camps that will convene during the weeks of July 14th and July 28th. He announced that both sessions are already full with 20 students each, including 8 students who previously attended Science Saturdays. Career Source (formerly Workforce Connection) is once again our partner in the camps, and will be paying the instructor and assistant instructor salaries as well as covering the cost for upgrading the robots used in the camps with Central Florida College providing the laptops. He mentioned that camp sponsorships are being provided by Heritage Bank (10 scholarships), FLATE and MRMA (2 scholarships each) for a total of 14. Dr. Ford continued his briefing informing the Board that in addition to the instructor, Dr. Cruz, each camp will be staffed by four high school volunteers, and many of these are Science Saturday volunteers with IHMC experience. He concluded by mentioning that new this year, each robotics camp will also feature a lunch speaker on topics related to robotics.

Dr. Ford then turned to discussing summer hires mentioning that due to lack of space from flooding, IHMC does not have quite as many summer interns as normal but they are starting to arrive as universities conclude for the summer adding that these summer interns come to IHMC from around the nation and world. He mentioned that many of the summer interns will be working in areas related to robotics, exoskeletons, and coactive design and that the robotics lab will be hosting 12 student interns hailing from the Netherlands, France, Italy, Switzerland, and the United States including 6 from Florida universities and 3 from UWF. Dr. Ford added that IHMC Pensacola will also be hosting 2 summer interns from Khalifa University in the United Arab Emirates and that in Ocala, Dr. Bonnie Dorr has recently hired a UCF student Gregory Northrup who will be working on speech recognition projects with Bonnie and her team as well as on a NIST Event Extraction project with Bonnie and Dr. Milenko Petrovic.

Dr. Ford then turned the conversation to the Evening Lecture Series announcing that IHMC will be hosting a special summertime evening lecture in Pensacola on July 16th that we believe will be very well received. He informed the Board that David Waggoner's talk will focus on his leadership role in developing New Orleans' new urban drainage and stormwater plan adding that this talk should be of great interest in Pensacola after the large scale flooding we experienced across large segments of our community. He continued by mentioning that the speaker lineup for our Fall Evening Lectures series is very strong with 4 fascinating lectures in each IHMC location. He informed the Board that we can always use additional sponsors so please feel free to refer anyone you know who may have an interest adding that this is a great opportunity to have dinner with an engaging speaker and an interesting collection of other lecture sponsors.

Dr. Ford then turned to spin off technologies informing the Board that IHMC's research around a novel new kind of robot that we call HexRunners has resulted in an IHMC researcher, Dr. Sebastien Cotton, discussing with IHMC his interest in forming a start up to develop small running robots for education and entertainment. He added that IHMC has agreed to allow Sebastien to use our facilities and to license him the rights in this field of entertainment and educational robotics and that although Sebastien was not successful in funding his new venture through a recent KickStarter campaign, he has been approached by a major toy manufacturer and is currently negotiating with them to develop a $100 robot. Dr. Ford added that IHMC is happy to support this local spinoff company in Pensacola and we wish Sebastien every success.

Dr. Ford concluded his remarks by mentioning that at each Annual Meeting, we typically feature a specific IHMC researcher and take a closer look at their work. This meeting, he remarked, we are excited to have Dr. Bonnie Dorr, our newest Senior Research Scientist and Associate Director, who will be discussing her research. He added that following a short break and Bonnie's talk, we will be traveling to the Wright Street facility to see a new visitor to our robot family, NASA's humanoid robot Valkyrie, and upon returning from the lab, we will have an opportunity for a group photo and lunch before adjourning. Dr. Ford thanked the board for their service on this Board and thanked Chair Sturm for the opportunity to provide these comments adding that this concluded his report.

Chair Sturm thanked Dr. Ford for an excellent report and asked if there were additional items for the Board. Hearing no additional issues, Chair Sturm adjourned the business portion of the meeting and thanked everyone who dialed in. He announced that we would take a tem minute break and return for a research presentation by Dr. Bonnie Dorr followed by a visit to the robot lab at Wright Street, a group photograph and lunch.

Dr. Dorr made an excellent research presentation to the Board after which the full Board visited the robot lab at Wright Street, took a group photo and enjoyed lunch in the IHMC library. The IHMC Board of Director's Annual meeting was adjourned at 11:25 a.m. CST.

Julie Sheppard

Corporate Secretary