

**STEM Advisory Council Full Committee Meeting**

**November 10, 2015**

**4 p.m. – 5:30 p.m.**

**APPROVED MINUTES**

*Location*

STEM Summit, Grand Ball Room - South  
DCU Center  
Worcester, MA 01608

*STEM Council Committee Members Attending*

Joseph P. Kennedy III, Congressman, Honorary Chairman of the STEM Advisory Council \*

Jeffrey Leiden, M.D., Ph.D, Chairman, President and CEO, Vertex Pharmaceuticals\*

Karyn Polito, Lieutenant Governor\*

James Peyser, Secretary of Education

Jay Ash, Secretary of Housing & Economic Development

Jake Foster for Mitchell Chester, Commissioner, Department of Elementary and Secondary Education

Carlos Santiago, Commissioner, Department of Higher Education

Ronald L. Walker, Secretary of Labor & Workforce Development

Eric Lieberman for Thomas L. Weber, Commissioner, Department of Early Education and Care

Al Bunshaft, CEO, DS Government Solutions

Nadia Chamblin-Foster, Director, Steps to Success

J.D. Chesloff, Executive Director, Massachusetts Business Roundtable\*

Jim Brosnan, Superintendent, Northern Berkshire Vocational Regional School District

Joseph Dorant, Chair, MA Organization of State Engineers & Scientists

Pamela Goldberg, CEO, MA Technology Collaborative

John Hodgman, STEM Advocate

Joyce Kressler, Director, EcoTarium

Debbie Lacy, Parent Representative

Laurie Leshin, President, Worcester Polytechnic Institute (WPI)\*

Anne Marie Levins, Associate General Council, Microsoft\*

Michael Looney, Curriculum Chair, Technology Department, Mashpee Public Schools

Travis McCready, President and CEO, Massachusetts Life Sciences Center

Bob Gamache for Marty Meehan, President, University of Massachusetts

Patricia Meserve, President, Salem State University

Reinier Moquete, CEO at Advot Technology Group and Co-Founder of Latino STEM Alliance

Stephen Pike, Interim CEO, MA Clean Energy Center

Joyce Plotkin, STEM Advocate

Ira Rubenzahl, President, Springfield Technical Community College (STCC)\*

Kenneth Salim, Superintendent, Weymouth Public Schools

Douglas Scott, Science Teacher, Hopkinton High School

Yvonne Spicer, Vice President, Advocacy and Educational Partnerships, Museum of Science

Michael Tamasi, President and CEO, AccuRounds\*

Steve Vinter, Engineering and Site Director, Google Inc. \*

### *Not in attendance*

Sonia Chang-Diaz, State Senator, Co-Chair of the Joint Committee on Education  
Alice Peisch, State Representative, Co-Chair of the Joint Committee on Education  
Daniel Wolf, State Senator, Co-Chair of the Joint Committee on Labor & Workforce Development  
John Scibak, State Representative, Co-Chair of the Joint Committee on Labor & Workforce Development  
Sheila Harrity, Superintendent, Montachusett Regional Vocational Technical School District\*  
Monica Joslin, Dean of Academic Affairs, Massachusetts College of Liberal Arts (MCLA)  
Timothy Murray, CEO, Worcester Chamber of Commerce  
Marcy Reed, Senior Vice President, National Grid\*  
Ellen Spear, President & CEO, Heritage Museums & Gardens

### **Minutes**

#### *I. Welcome & Framing of the STEM Agenda*

- Lieutenant Governor Polito
  - Opened the meeting and welcomed all members of the STEM Council who then introduced themselves.
- Congressman Kennedy
  - Thanked leadership of the Executive Committee for their continued commitment to STEM education
  - The key for this organization to succeed is around integration and engagement across multiple sectors
  - STEM Council has made a lot of strides in many areas:
    - Business engagement, evidenced by participation of Vertex and Dr. Leiden
    - Need to do more to engage women in STEM
    - Education to employment pipeline
    - Council and executive committee has created a road map for going forward
    - No lack of resources and expertise in the Commonwealth; need to leverage assets
    - In setting an agenda: where can we make the biggest impact, at scale, over the next 1-3 years
    - The only way to move the agenda forward is if we have your ideas, buy in, and can leverage your talent, resources, and organizations that you represent; need to engage various groups across the Commonwealth
    - Need to flesh out ideas with your feedback
- Jeff Leiden
  - Goal of the meeting is to receive your feedback and suggestions
  - Congressman Kennedy is one of the few politicians who fully understands the need to ensure a strong STEM pipeline.
  - Secretary Peyser is committed to making a difference
  - The Lt. Governor is committed to STEM

- The Council has done great work over the last 4-6 years; made great progress. We're at an inflection point to focus efforts on a smaller group of projects to scale across the commonwealth; excited to measure that impact.
- Three themes have emerged that tie the activities together
  - Need to spark early interest in science and technology amongst kids. Every scientist can tell you when they got hooked on science and it wasn't in college.
  - Interest isn't enough. We need to develop pathways. We need to have experiential opportunities for students.
  - We need to build vibrant public-private partnerships. Each council member can play a unique role in this effort. Together we can help build an end-to-end opportunity for kids to pull them into careers in science.

## *II. Overview of Proposed STEM Council Priorities*

- Secretary Peyser outlined the criteria he believes are important for the STEM Council's work. He said he hopes the STEM Council works in areas that:
  - Spark student interest and turns it into academic and career success.
  - Can easily replicate the work on as large of a scale as we can.
- Objectives:
  - Come together as a STEM Council for the first time under leadership of the Baker-Polito Administration
  - Share the Executive Committee's vision and recommendations for the work of the STEM Council moving forward
  - Solicit feedback and discussion from the full STEM Council
  - Identify next steps
- Secretary Peyser spoke about the relationship between STEM Council and Workforce Skills Cabinet via Secretary's participation in both through Executive Committee
  - Connection between Workforce Skills Cabinet and the Lt. Governor is to elevate the profile of the STEM Council and embed it deeply in the Administration.
- STEM Council Executive Committee agreed on the following principles:
  - Support vital few scalable programs that have direct impact on students
  - Replicate and grow proven models of success
  - Engage business as a full partner, including workplace learning opportunities
  - Move beyond awareness programs to provide students with access to career pathways into STEM fields, beginning in middle school
  - Focus on communities with high concentration of low-income students and underrepresented groups
- Council feedback on priorities, including:
  - Priority of low-income communities
  - Engaging students who are well-prepared, but not interested in pursuing STEM
  - Continuing STEM Council priority of broadening awareness of importance of STEM education

- Importance of teacher buy-in
- Role of higher education
- How to engage parents
- Necessity of engaging school and district leaders
- Role of arts in STEM
- Replicating best practices
- Ensuring school autonomies
- Providing supports to develop high-qualified STEM teachers
- Engagement of small businesses
- Secretary Peyser thanked members for their feedback and acknowledged that the final principles/goals will come about through a tradeoff of all the good ideas. The Secretary and his team will translate the discussion points into recommendations. Some recommendations to date include:
  - Expand work-based learning programs
  - Increase funding for Connecting Activities & better align Connecting Activities with Youth Works
  - Develop and grow STEM early college career pathways
  - Endorse MassCAN
  - Establish a multi-year competitive grant to encourage schools to implement:
    - PLTW curriculum
    - Advance AP courses: MMSI and Equal Opportunity Schools
    - Implement CS curriculum in schools

### *III. Discussion Points for Feedback*

- Do the recommendations meet the charge of principles?
  1. Which recommendations do you see as having the most impact or being the most scalable?
  2. Where do you think your organization could play a role to advance agenda?
  3. How can the regional STEM networks support the recommendations or otherwise drive student outcomes in low-income communities or for under-rep populations?
- Council Feedback:
  - MMSI focuses on middle or high school students with a goal on increasing the number taking AP in math and science; however, the MMSI's program is not focused on higher ed.
  - We have selected a hand full of projects. Where are the data that says these are the scalable initiatives to put our energy into? Are we saying we should move all of our children into these capacities? How prepared are districts to scale these? What is the impetus to have middle school students feel like they can access this?
    - Secretary Peyser: Research base. These have been around for a long time and have data. They also have a broad reach. I am not sure if we have the data to say that these are the "only" best, but feel confident that these are scalable and can effect a larger population. None of this is intended to go to 351 towns. We want to scale up

in places that have the capacity to do this. This needs to be demand driven and not mandate driven.

- To what extent can the revised STE frameworks be leveraged to drive change? Biggest change is in middle school. Can this strategy help districts make the transition?
- There is a significant lack of qualified candidates to fill positions. I'm also concerned that some schools do not have CS or coding. The key to the pathway is to have exposure early and often to a variety of STEM opportunities. CTE students sometimes are more qualified to go to college or directly into the workforce who study CS.
  - We have to provide computing education at every grade level. We cannot do it if you expect to put a Computer Science teacher in every classroom. We want to focus on educating elementary classroom teachers of available resources. For Middle School want to train math and science teachers. For High School want to train Computer Science teachers. Standards have been drafted for Computer Science and digital literacy. It should drive the frameworks. The purpose is to help schools determine how information will be taught and provide examples from across the nation. Also about public awareness. About 1/3 of schools in MA will participate in Hour of Code.
- Opportunity for networks to partner with WIB for school-to-career opportunities. Opportunity to partner HS age kids with industry. As a teacher, having a hard time to find internships for HS students in engineering.
- Fan of endorsing computer science; working on the standards. Value of both of these is that many stakeholders can contribute to this. Harder to see how multiple stakeholders can engage in early college high schools, Project Lead the Way, and MA Math Science Initiative (MMSI). Also, not getting down to middle school. Not adding to overall pool.
- Would dual enrollment also be part of this?
  - Secretary Peyser: Yes. It would be critical.
- How many small business owners are in the room? We are the end user. We took a focus to try to narrow it. Engagement of small business is absolutely critical. The SE STEM Network and the work that Katherine Honey has done to make connections to WIBS, Business, and CCs. SE STEM Fair is a huge success. The article in Boston Globe is the need for a million jobs by 2022. Need both voc tech grads and college degree holders. What I see the Council moving toward is that we are narrowing down what is most critical. We can't do it all for everyone, but we are doing what we need most now.
  - Lt. Governor Polito: Especially important for communities outside of 128. Each region is different, but the small business connection is real in each region. Biggest challenge and opportunity is outside of Boston. This is where STEM networks can help.
- Can you please clarify the status of the networks?
  - Sec. Peyser: That is what we are trying to figure out today. We need to balance our investments. From a process point of view, we will take today's feedback and reconvene the executive committee to modify the proposal, including allocation of

existing programs. There are no price tags here. Trying to figure out the right direction before figuring out how much. Also fiscal constraints. Part of what will come out of the next round of conversation is how much we should be investing in.

- Will each district have to do all four or just one?
  - Sec. Peyser: This is not for everyone. We do not have the resources to support all districts with this. This would be a competitive grant program. For Connecting Activities, there already is a structure for that. Can't say everyone is going to do Project Lead the Way, but it would take the commitment of the school to do.
- This is great. It is great because over the last ten years, we have had 5 goals. They have led to peanut butter strategies. This is focused. But, as we are developing a new plan, we need to articulate goals around these specific strategies so we know where we want to be and everyone drives to it.
- This can't be all things to all people. I have been familiar with MassCAN for years. I want to endorse MassCAN and that sends a strong message to parents, school districts, and students, and competitor states -- we take pride in STEM investments. The thing that I was looking for was a turnkey solution. Over past four weeks, have had multiple conversations with companies across the world to place jobs in MA in the next five years. These jobs are highly specific in R & D, manufacturing, quality control, etc. I understand that there is an infrastructure that we are building. I also need to say that we need to be successful in giving a turnkey solution that says we can supply you with thousands of jobs you are looking to create, to companies that want to move here. I am not sure if we have those turnkey solutions. Those solutions often need to be regionalized. The desire is to have the infrastructure of where those jobs will be placed to have the community ready to provide labor for those jobs.
- I agree with experiential learning. Employers have a real opportunity to contribute to it. Trying to galvanize more High Tech employers. Employers need more help. We tend to market to juniors in college. How do we provide guidance to companies to reach out and engage in high school internships?
  - This is what Connecting Activities funds. It connects employers and high school students. It's a brokering function. The other competent is to engage new employers to sell on the idea. We need to design an age appropriate and productive opportunity for students.
- Cultural competencies, particularly as we think about changes in demographics. The Latino population and increased focus on low-income communities need to think about engagement and support. In the programs that are taken to scale, what type of cultural infusion will there be so these students feel like this is something for them.