Commonwealth of Massachusetts
STEM Advisory Council

Moving the STEM Agenda Forward

STEM Advisory Council Meeting
July 11, 2017

Principles for Focus & Impact

In November 2016, the STEM Advisory Council agreed on the following principles to guide and frame its recommendations:

- ✓ Support a vital few proven scalable programs that have direct impact on students in grades 6-14 and are aligned with rigorous academic standards

- ✓ Engage employers of all sizes, particularly small- and medium-size businesses, as full partners in workplace learning opportunities

- ✓ Build on awareness programs to provide students with access to integrated career pathways into STEM fields, beginning in middle school and reaching into college and the workforce

- ✓ Expand targeted initiatives to strengthen foundational STEM skills, while deepening the pipeline of well-trained STEM teachers and school leaders

- ✓ Focus on under-represented populations and communities with high concentrations of low-income families and involve both students and parents

1. **Expand Work-Based Learning Programs**

2. **Develop and Grow STEM Early College Career Pathways**

3. **Broaden and Deepen Computer Science & Engineering Initiatives**

4. **Align the work of the Regional STEM Networks to the STEM Advisory Council priorities**

Expand Work-Based Learning Programs (1)

GOAL: *Provide students in high-need communities with meaningful on-the-job learning experiences to prepare them for the workplace and to give them hands-on experience with STEM careers*

WORK TO DATE & FY18 PLAN

Expand Access to Paid Internships

- o The Baker-Polito FY18 budget proposed *increasing funding for Connecting Activities* to $3.5M, but the FY18 Conference Report would keep funding at just under $3.0M.

Direct Outreach and Engagement with Industry: MA STEM@Work

- o In July 2016, the STEM Council *hired O'Neill and Associates* as a consultant to assist in executive-to-executive outreach and provide communications and branding support. This effort resulted 25 new companies establishing paid high-school internships with 54 placements this summer.

- o Learning from work in 2016-2017, the STEM Council will release an RFP for a 2-year competitive grant for 5 Workforce Investment Boards to *expand local outreach and recruitment*.

Expand Work-Based Learning Programs (2)

GOAL: *Provide students in high-need communities with meaningful on-the-job learning experiences to prepare them for the workplace and to give them hands-on experience with STEM careers*

WORK TO DATE & FY18 PLAN

Align State Initiatives

- *High-Quality College and Career Pathways:* The Executive Office of Education, in partnership with the Departments of Higher Education and Elementary & Secondary Education, are jointly *establishing career-oriented Innovation Pathways*, many of which will be based on partnerships with STEM employers, including work-based learning experiences and technical coursework.

- *Internships:* In FY18, the Council will work to *better align MA STEM@Work* with other STEM internship programs at other state agencies and business associations, including MA Clean Energy Center, MA Life Sciences Center, and MA Tech Collaborative.

Develop and Grow STEM Early College Career Pathways

GOAL: *Provide students in high-need communities with access to integrated career pathways into STEM fields, beginning in middle school and reaching into college and the workforce*

WORK TO DATE & FY18 PLAN

Establish & Expand Early College Programs, with emphasis on STEM

- *Program Standards:* The Boards of Higher Education and Elementary & Secondary Education approved *designation criteria for early college programs* at their June 2017 meetings. An RFP is expected to be released in mid-July.

- *Incentivizing STEM Focus:* In FY18, the STEM Council is planning to spend $300,000 on competitive *planning and implementation grants* for schools that apply for STEM Early College designation.

Leverage State Funds to Build STEM Early College Models

- The Baker-Polito Administration *proposed doubling Dual Enrollment* in FY18, with a particular emphasis on STEM early college programs, but the Conference Report keeps funding at $1M.

- FY17 grants for *STEM Starter Academies were refocused on engaging high school students* in STEM opportunities to increase college enrollment in STEM fields.

Broaden and Deepen Computer Science & Engineering (1)

GOAL: *Strengthen foundational STEM skills, while deepening the pipeline of well-trained STEM teachers and school leaders*

WORK TO DATE & FY18 PLAN

Strengthen and Expand Computer Science and Engineering Courses

- The STEM Council joined the Workforce Skills Cabinet and One8 Foundation to award *a $1M public/private grant to Project Lead The Way* (PLTW), to help 45 schools implement the PLTW computer science, engineering or biomedical science curriculum, including teacher training and equipment purchases.

- In FY18, the STEM Council is planning to award another public/private *grant to PLTW to support further growth*.

Increase Participation in AP Courses in Science, Math, and Computer Science

- Due to uncertainty in the federal budget, the STEM Council *subsidized the cost of AP and International Baccalaureate exams* in STEM subjects for low-income students.

- Massachusetts has joined the College Board in an application to the National Science Foundation for *grant to train 100 teachers in AP's Computer Science Principles* course over two years.

Broaden and Deepen Computer Science & Engineering (2)

GOAL: *Strengthen foundational STEM skills, while deepening the pipeline of well-trained STEM teachers and school leaders*

WORK TO DATE & FY18 PLAN

Promote Importance of Computer Science Education

o *Coalition-Building:* In FY 17, the STEM Council has been *working with MassCAN leadership to develop a more focused strategy* for building a broad-based business coalition to advocate for the expansion of K-12 computer science and directly supporting early adopter school districts.

o *Continued Support:* In FY18, the STEM Council plans to *fund MassCAN to launch its new campaign*.

Align Regional STEM Networks to STEM Council Priorities

GOAL: *Leverage Regional STEM Networks to promote and implement STEM Council priorities, particularly with industry, schools and community stakeholders*

WORK TO DATE & FY18 PLAN

Revitalization & Alignment of Regional STEM Networks

- *Alignment:* In FY17, the STEM Council *awarded $260,000 to four Regional STEM Networks* to help align their priorities to those of the STEM Council.

- *Self-Sustaining*: In FY18, the STEM Council is preparing make its final grants to these Networks (including a new Northeast Network), to *deepen their alignment to STEM Council priorities and prepare them for self-sufficiency* beginning in FY19.

FY 18 STEM Pipeline Fund Budget

FY 18 STEM Pipeline Fund Budget	Proposed Amount
2016 STEM Summit Contribution	$50,000
STEM@Work Capacity Building Grants and Support	$250,000
Grants for Computer Science/Engineering Curricula	$350,000
MassCAN 2.0 Start-Up Grant	$100,000
STEM Early College Planning Grants	$300,000
Regional Network Grants	$300,000
STEM Council Staffing	$150,000
Total	**$1,500,000**