April 2, 2010

TO: Dane Linn, Director, Education Division; National Governors Association (NGA)
Chris Minnich, Strategic Initiative Director, Standards, Assessment, and Accountability;
Council of Chief State School Officers (CCSSO)
Sharmila Conger, Staff; State Higher Education Executive Officers (SHEEO)

As representatives of the entire public education enterprise in the state of Oregon, we are responding to the proposed Common Core Standards in English-Language Arts and Mathematics. We have three points to make. We emphasize that each of these points has the support of Governor Kulongoski's education advisors and represents strong consensus among our sectors: K-12 education, community colleges, and public universities.

1. We applaud your effort to establish high standards in fundamental areas such as reading, writing, and mathematics, that will be consistent from state to state. Oregon was an early supporter of the intent of this initiative because of our belief in the efficacy of this approach. We saw an opportunity to correct pervasive problems in verbal and quantitative literacy and were particularly optimistic about the promised move to "higher mastery of fewer, more useful skills" in mathematics (Introduction to *College and Career Readiness Standards for Mathematics*, p. 2: http://www.corestandards.org/Files/MathIntroduction.pdf).

2. We believe that the draft *English-Language Arts Standards* are good and consistent with the intent of your initiative. They are well written – in language that will make the architecture and structure of the standards clear to students, the general public, classroom teachers, and curriculum designers. In addition, feedback from our K-12 teachers and university faculty indicates that these standards, though ambitious, are generally appropriate for the grade-levels to which they will apply. We have reservations about the rapid start expected in kindergarten and first grade, but support the level of challenge associated with later grades and commend the standard's strong and appropriate vertical alignment. We further find the level of rigor for high school graduates to be to be high, appropriate, and reasonable for entry into the workplace or postsecondary education.

3. Unfortunately, we are seriously concerned about the draft K-12 Mathematics standards. We urge the modification of the mathematics common standards so they are as realistic and valuable as the draft English/Language Arts Standards. Specifically, we are concerned that the draft K-12 Mathematics Standards, even allowing for the designation of certain of them for STEM students, dramatically and unnecessarily expand coverage of complex mathematics relative to last September's draft Career and College Ready Math Standards. Increasing complexity should not be equated with increased rigor; it is important to us that the standards are rigorous. Oregon's math standards, for example, are designed to encourage proficiency-based teaching and learning that promotes rigor through deeper conceptual understanding. What is the expectation for deep understanding and demonstration of proficiency of the K-12 common core Math standards? Teachers and students need time to master knowledge and skills. When educators are presented

with a breadth of standards with ever-increasing complexity, instructional time is seriously impacted. What often results is that students exit mathematics classrooms without the ability to apply what they have been exposed to. The standards driving the curriculum may have been "high" but was the learning deep? In our judgment, the draft K-12 Mathematics standards are now inconsistent with the previously referenced move to "higher mastery of fewer, more useful skills" in mathematics. A number of us are scientists, engineers or mathematicians by training. We believe strongly in the need to raise the general level of math literacy, as well as to prepare students for our fields, and have imagined reaching both goals through improved math standards. Why do we now recommend reducing the complexity of the math that the K-12 Common Core Standards would require of all high school graduates? In the points below, we outline the rationale for our thinking:

- University math faculty now tell us that a majority of our entering freshmen are not prepared for the lowest level non-remedial math course we offer (College Algebra) – despite the fact that the overwhelming majority of them have had at least 3 years of high school math, including Algebra II, which is beyond "College Algebra." This problem is not unique to Oregon, since similar failure rates in beginning college math courses are reported throughout the country (e.g., "Diploma to Nowhere" 2008: http://www.deltacostproject.org/resources/pdf/DiplomaToNowhere.pdf). Moreover, the problem is not easily corrected after students reach the university. Our math faculty point out that students who have mastered the basics in high school can easily be taught more advanced math. In contrast, students who reach the university still flummoxed by the basics are virtually locked out of any major that requires real understanding of fundamental mathematics.

- A recent survey of Oregon University System faculty who teach courses that require math (e.g., sciences, economics, business) reveals a similar complaint. These "consumers" of K-12 math education note that the math deficiencies that hinder their students are in skills such as working with proportions and with simple linear relationships. These skills are in the draft Common Core standards for 7th or 8th grade, not in the standards for high school. Moreover, this survey shows that mastery at this level is not only necessary, but is largely sufficient, for success in their math-requiring courses. These faculty report that high school students do not need to master trigonometry, complicated geometry, or advanced algebra, including quadratics, in order to succeed in math-requiring university courses. These students do need to arrive at the university with a well-developed understanding of foundational math. With that foundation, they can handle quantitative disciplines of various kinds, including more advanced mathematics. Without it, they struggle with deficiencies that are nearly impossible to overcome.

- There is a significant lack of effective communication between K-12 and post-secondary educators about the math preparation needed either for higher education or for workplace readiness. This is strikingly shown in ACT's National Curriculum Survey 2009, which includes a comparison of math topics thought most important by high school math teachers and college algebra instructors (http://www.act.org/research/curricsurvey.html): High school teachers put manipulations with quadratic equations at the top of the list, whereas college algebra instructors put calculations and solving routine first-degree equations at the top.

- We note the discrepancy between the results of the OUS faculty and ACT surveys on the one hand, and the "Summary of Public Feedback for College- and Career-Readiness Standards" (http://www.corestandards.org/) on the other. We cannot resolve this conflict without more detail about the Summary of Public Feedback, but are struck by a common feature of the OUS and the ACT surveys. Both of them queried university faculty who teach entry-level classes that depend directly on math skills acquired in the K-12 system. We believe these faculty are in the best position to judge the kind of math that makes students "College Ready."

In conclusion, university faculty see students coming to them who have successfully negotiated their high school math curricula, without having acquired a deep understanding of math or the ability to use it confidently as a routine, even enjoyable, part of their lives. Acquiring this kind of facility requires providing students with the time and repeated exposure to foundational math that is necessary to develop the skills and confidence that will enable them to think through problems and apply math in diverse settings. To directly quote one OUS Math Department faculty member:

> *In the face of concern about how little math our high school students understand on graduation, it is hard to respond by doing anything other than asking for higher standards. But we've been exploring this road for well over a decade now, and it hasn't resulted in improved outcomes. So even though it seems paradoxical not to ask for higher standards, if we want to have a chance of improving the outcome, what we want are the **correct** standards, not just more standards.*

We believe that realistic Common Core Standards will foster the kind of math literacy we desire for our students. In our view, the March draft of the K-12 Math Standards will not do this and could do active harm because it continues to move away from "higher mastery of fewer, more useful skills." We are confident, however, that the talent and energy that have been applied to the Common Core initiative to date can produce K-12 Common Core Math Standards that will promote real math literacy and that we could enthusiastically adopt. We look forward to continuing to participate in this endeavor because establishing realistic standards can only improve U.S. public education.

Thank you for your continuing work on this critical initiative.

Sincerely,

K-12 Education Representatives

Susan Castillo: State Superintendent of Public Instruction

Duncan Wyse:* Chair, Oregon State Board of Education and President, Oregon Business Council

Jerry Berger:* Member, Oregon State Board of Education and Chair, Unified Educational Enterprise (Oregon)

Community College Representative

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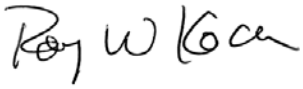

Roy W. Koch, Provost and Vice President for Academic Affairs, Portland State University

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** The members of the Oregon State Board of Education and the Oregon State Board of Higher Education endorse the contents of this letter as individuals. Their endorsement is not to be interpreted as the official position of their respective boards.*