

2013 HOUSE EDUCATION

HB 1228

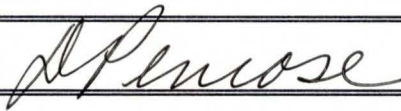
2013 HOUSE STANDING COMMITTEE MINUTES

House Education Committee
Pioneer Room, State Capitol

HB 1228
January 21, 2013
17453

☐ Conference Committee

Committee Clerk Signature



Minutes:

Ch. Nathe: We will open the hearing on HB 1228.

Rep. Lisa Meier: Sponsor, explained the bill. Support. I started working on this piece of legislation with a group of individuals that work with STEM. STEM stands for Science, Technology, Engineering and Mathematics. STEM is a critical piece of education for K-12 to help equip our students to what they need to be college ready in order to pair up with what our economy needs. This legislation will establish a state-wide student centric STEM network in ND. Then leveraging this investment to obtain funding from business, industry and other private funding to support the network's ongoing and expanding work. In other words, this bill will provide crucial one-time start-up funding just to get this important opportunity off the ground. The private sector opportunities have the first to go through. Supporting STEM will assert to the nation that ND is among the strongest in education, which output supports a strong economy. There are others here to testify on this. #1

Ch. Nathe: You mentioned one-time funding. What happens after June 2015, you come back and look for additional monies, is this a pilot program.

Rep. Meier: I am working with individuals who solely want this to be a one-time source funding so we can get this off the ground. Private entities, which you will hear about, that have expressed interest in this area and we want it to be 100% one-time funding.

Ch. Nathe: So the thought is that after June 2015, the private sector will take over the program.

Rep. Meier: Correct.

Ch. Nathe: Thank you. Further testimony in support.

Sen. Larry Robinson: Co-sponsor, support. I am excited about what is happening with STEM initiative across the country and certainly here in ND. We have with us today, who can speak with real authority about STEM and what it is and what it isn't. Dr. David DeMuth, Director of the Great Plains STEM Education Center at Valley State. The bill is exactly what Rep. Meier said it is. It is an opportunity for us to

begin a process that we see is going to add so much to public education and private education here in ND. We attempted to move in this direction 2 years ago. Unfortunately it was later in the session and it didn't happen. This amounts to a full integration of curriculum. Dr. DeMuth can explain what that entails. There is considerable interest on behalf of major players in the business and industrial sectors of our state. I'm not an expert. I do know that this is where it's at. Our educational system, although very good, in many aspects it is very outdated.

Rep. J. Kelsh: What type of groups do you foresee applying for this grant.

Sen. Robinson: Dr. DeMuth can be specific when it comes to that. We have partners in the educational community across the state that are moving to implement the concepts embedded in STEM in a serious way. I know the West Fargo public schools are in, in a big way. We have a representative here from the Bismarck/Mandan public schools that are moving in this direction as quickly as they can because they realize the potential that STEM brings to learning in the classroom and what it does to the ability for placement afterwards. We all hear stories about the fact that our educational system has fallen behind many other countries, not just by some, but by a lot. STEM has a potential to help us regain our position of prominence in the world when it comes to education. You're going to hear about several that have already expressed interest.

Ch. Nathe: Thank you. Further testimony in support.

Matt Strinden, Director of Teacher & School Effectiveness, DPI: Support (see attached). #2

Ch. Nathe: Can you speak to the success of STEM in the West Fargo school district.

Mr. Strinden: West Fargo STEM Middle School has essentially taken these STEM concepts and integrated their teachers working in units together to provide large scale projects for their students. One of the things that has been interesting is that as West Fargo moves forward and continues to grow, I think that administrators there are finding that there is a push from the parents that have had students in that school, to ask about where those STEM initiatives and where those STEM opportunities are as the students move up into the high school ranks. It has been very successful. I am hoping to be able to take a look at the data between West Fargo's STEM center and Chaney Middle School and see if there's been an impact in terms of increased abilities in the STEM fields or areas for those students in those schools. That is certainly something, as a department, that we will be looking at.

Rep. Rust: Give me a concrete example.

Mr. Strinden: An example might be taking a math/science/technology/education/engineering teacher combining them together to create and develop multi-curricular units so that instead of students going to 50 minutes for this class and 50 minutes for that class, etc. and seeing no connection between those curricular areas. Those teachers will now work together in a fashion so that the students understand the

interconnectedness of the math and science along with their language arts and other areas that they teach.

Rep. Heller: So the \$400,000 appropriation or so much of the sum that may be necessary. So that is the top amount that you would receive, and then if you don't need that amount you wouldn't use it.

Mr. Strinden: That's not something I can answer to in terms of the bill.

Rep. Meier: Wayne Kutzer, from CTE will explain that.

Ch. Nathe: Thank you. Further testimony in support.

Rep. Ben Koppelman: Support. On November 24, 2009, Gov. John Hoeven, declared that day was to be STEM Day. That was in recognition of some of the advancements, partly in West Fargo to STEM. The West Fargo STEM center started out as a magnet school of sorts; a selective school where parents could opt in for their kids to attend. It wasn't mandated. It started out as a supplement to existing curriculum to teach things in science/technology/engineering/math such as specialty courses, elective course to partner with standard curriculum courses. One of the things that West Fargo learned in that experiment, was the benefit that all kids can receive from STEM education and learned how to integrate that in with existing curriculum, so it didn't have to be additional classes to teach the STEM concept but rather could take those concepts and spread them out across already required classes. An example might be if you're in a language arts or English class and whether it's reading or grammar, when you're talking about it, if you relate it to a subject matter that might be in math or engineering, but you're trying to teach the concepts of language arts, you can tie the two together in that language arts class. Inversely, in a math class if you have a word problem (like at the elementary level) that might talk about the rate at which something might fall due to gravity and they might give you pre-determined items within the word problem and you have to factor it out, then you are able to tie in both language arts and science into a problem like that because often times the kids write it out so that you can make sure that they use good grammar and proper terminology. In doing that, you can teach them the concepts of science and physics at the same time as teaching them how to compute those problems. We also had a little bit of a learning curve in implementing STEM in addition various arts, such as whether it be standard art, or art such as music. Parents, at times, were concerned whether or not if you had all stand-alone classes, whether that would leave time for music. In West Fargo, we learned how to implement that into the technology, both so that we could put it throughout our curriculum in all of our schools, but also to allow time for arts. Currently, West Fargo is completing their second high school and second middle school, in addition to Cheney and it's planned that in the short term that would be implemented in both middle schools and in the long term in the high schools as well.

Rep. Rohr: So do you have any data that you shared in terms of the success of the program with your constituency and school boards.

Rep. B. Koppelman: I do believe that there is data to show some of the strengths of the curriculum. In terms of the full integration of the curriculum, that is relatively young. That started to be implemented last school year and this school year which isn't complete, as well as the other schools coming on line over the next two school years. That data is probably for the next session.

Ch. Nathe: Thank you. Further testimony in support.

Shane Goettle, MDU Resources, who is a member of both the Lignite Energy Council as well as the ND Petroleum Council: Both Sandy Tabor and Ron Ness asked that I appear on behalf of both of those councils today to provide support for HB 1228. I would like to draw the committee's attention to the purpose of the grant. You will note, that the language includes "this collaboration between our system of education in the state as well as the private sector industries to strengthen educational opportunities and to align the educational opportunities with economic development and workforce needs". It is no secret that we're importing a great number of technical skills into the state, in both the Lignite and Petroleum industries. They are in high need for people with these skills. The opportunity for our youth to stay in the state, has never really been greater as long as their educational skills line up with the needs of our economy. Industry has needs, but this is also a great opportunity to retain more of our youth in the state. Those two entities wanted to go on record this morning in support of this initiative.

Ch. Nathe: Thank you. Further testimony in support.

Doug Johnson, Exec. Director, ND Council of Educational Leaders: Support. We just had our summer conference up at the Career Academy Center of Bismarck Public Schools up in the BSC campus. We focused specifically on STEM education for our administrators. It was one of the best summer conferences that we've ever had, got tremendous feedback from our members on the information that they were able to glean from that conference and how to put that into place within their schools and the structure of their curriculums. Then, as a former science teacher myself, I really strongly believe in STEM education.

Ch. Nathe: Thank you. Further testimony in support.

Paul Keidel, ND STEM Network and Bismarck Public Schools Career Academy: Support. Some of the money that we are asking for will be used to increase the number of STEM graduates in ND. We're looking to develop more cooperation among stakeholders, many of which have already spoken this morning; train more students wanting and having the ability to learn STEM; increase high school graduation rates; to increase the STEM workforce needed in the state of ND. To invest in economic development, so the newly trained workforce can stay in their communities; have a ND workforce that ranks K-12 education one of the tops in the country. We want to have education and visioning for communities to develop the demand for STEM education; we're looking for the diversity inherent to ND; so that it is embraced and STEM is truly for all students in ND; the right to expand the 21st century skill set for ND citizens; make use of evolutionary systems. I would like to

talk briefly about what is going on in the Bismarck school system at the Career Academy. There are great examples of what is going on in STEM education in our aviation, engineering, electronic, botany/horticulture, digital design, our Ag science, and Ag economics. The list goes on. We are looking to connect the PK-12 workforce in the larger STEM community across ND. STEM becomes the responsibility of all ND citizens and we want to allow ND to be eligible for competitive federal grants, when grants such as Race to the Top and Change the Equation come about. Having a STEM network in place makes ND more eligible for these grants. The ND STEM network aims to link an increased cooperation among all ND stakeholders to provide opportunities and encourage all students to become creative, innovative, and gain 21st century skills through increased engagement and project based learning driven by science, technology, engineering and math. These skills will allow ND students to graduate, gain additional skills and become part of the productive and competitive workforce in ND. We believe that this approach to education needs to become our vision for ND students and is the responsibility, not only of educational institutions at all levels, but the ND citizens, businesses and communities.

Ch. Nathe: Could you talk to what STEM is doing here in Bismarck and its relationship with higher ed, BSC in particular.

Mr. Keidel: A great example would be the articulation agreements that we have with BSC and Bismarck Public Schools. For instance, if a student is in electronics class and they take that class for 3 years, that student is then eligible to move directly into the second year of electronics at BSC and graduate with a 2 year associate's degree in Electronics and move out into the workforce at say age 19.

Ch. Nathe: The classrooms up at BSC are really quite amazing.

Rep. Rohr: So is this program for the Bismarck/Mandan area, or just the Bismarck area.

Mr. Keidel: Currently articulation agreements similar to the one at BSC, we have similar agreements with Wahpeton Science. We currently work with the UND with our aviation program. We currently work with Valley City State Univ. training our elementary teachers for Lego robotics. We have 3rd and 4th grade students in Bismarck have two weeks of engineering and robotics in the elementary schools.

Rep. Rohr: Does this involve the Mandan school system as well.

Mr. Keidel: Mandan students may attend the Career Academy and take advantage of all those programs. It also extends up to Wilton, homeschooled students, we're working on other school districts around the area, such as Steele, but also our parochial schools, St. Mary's, Shiloh Christian all take advantage of this program.

Ch. Nathe: Thank you. Further testimony in support of HB 1228.

David DeMuth, Executive Director, Great Plains STEM Education Center at Valley State University, professor of physics: Support (see attached). #3

Ch. Nathe: Thank you.

Wayne Kutzer, Dept. of Career and Technical Education: Support. The Dept. of Career and Technical Education was asked to put this funding in our bill by the STEM network. The STEM network is a group of about 50 people representing colleges, universities, businesses, K-12 education educators across the state. This funding is designed to help further that network and give it some substance so that it can do its work over the next two years. CTE has always been involved with STEM education, the STEM movement actually from the beginning. Many of the principles that surround CTE are what the principles are in terms of STEM. It's because of that connection that we see this strong need to work with this group.

Ch. Nathe: Regarding the \$400,000 amount, I read that it means "up to \$400,000" and whatever they don't use. It says not to exceed \$400,000.

Wayne Kutzer: It will not exceed \$400,000.

Rep. Rust: As I read the bill, this is \$400,000 for a grant. One grant.

Wayne Kutzer: Yes. One grant to the ND STEM Network is the intent of the grant. It doesn't state that in here because in the legislation you can't list an entity, but the intent is that it will be awarded to the ND STEM Network.

Ch. Nathe: Then your office would then take the grant request and determine which ones will qualify from there.

Wayne Kutzer: There will be a grant request from the ND STEM Network, it will actually be through Valley City State University, they will be the fiscal agent for this. It will actually be the STEM Network that will be the grant recipient. The purpose of the funds is to provide the ND STEM Network with the resources to keep the network together, so it will hire an individual or entity to organize and keep that STEM Network going and provide some internal support. It will provide for travel, provide for meetings to bring the STEM Network together, those kinds of things.

Rep. J. Kelsh: This includes Tribal schools. We had a bill that would have put \$500,000 into trying to collaborate the efforts in those school districts that have a lot of Native American students. Are the tribal schools working with you on this issue and making STEM available to their students. I am assuming this is all colleges, more than high schools, is it.

Wayne Kutzer: Yes, tribal schools are involved. It runs the gamut of whether it's post-secondary and/or secondary. From my perspective, a lot of it is at the secondary level. That's where a lot of the training of the teachers, that's where the curriculum integrates the best. I would probably put more emphasis on the secondary, rather than the post-secondary.

Rep. Hunsakor: You talked about who makes up the STEM Network, business entities, university/college, government, industry partners, educators in general.

Ch. Nathe: Thank you. Further testimony in support.

Andy Peterson, Greater ND Chamber: Support. We like anything that promotes STEM employment. ND ranks #1 amongst all 50 states in new STEM employment growth. That is a great thing in our perspective. We're also #1 in short-term and long-term job growth. We like this. We're not sure about the long-term sustainability, but anytime we can bring STEM education to bear, to produce the kinds of employees that industry and business needs, we're for it.

Ch. Nathe: Thank you. You had said for every unemployed job there are 8.6 unemployed STEM jobs in ND.

Dr. DeMuth: I said that there are 8.6 jobs in the STEM fields and 1.5 unemployed people for 1 job, for every unemployed person in ND there are 8.6 jobs in STEM fields.

Ch. Nathe: Thank you. Further testimony in support. Testimony in opposition. We will close the hearing. What are the committee's wishes in regard to HB 1228?

Rep. Schatz: I move a Do Pass on HB 1228.

Rep. Heller: Second the motion.

Ch. Nathe: Clerk will call the vote.

11 YES 0 NO 2 ABSENT

DO PASS

CARRIER: Rep. B. Koppelman

Date: 4/21/13
Roll Call Vote #: 1

2013 HOUSE STANDING COMMITTEE
ROLL CALL VOTES

BILL/RESOLUTION NO. 1228

House

EDUCATION

Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken: ☒ Do Pass ☐ Amended ☐ Rerefer to Appropriations

☐ Do Not Pass ☐ Adopt Amendment

Motion Made By Rep. Schatz Seconded By Rep. Heller

Representatives	Yes	No	Representatives	Yes	No
Chairman Mike Nathe	✓		Rep. Bob Hunsakor	✓	
Rep. Mike Schatz	✓		Rep. Jerry Kelsh	✓	
Rep. Joe Heilman	✓		Rep. Corey Mock	✓	
Rep. Brenda Heller	✓				
Rep. Dennis Johnson					
Rep. Ben Koppelman	✓				
Rep. Lisa Meier	✓				
Rep. Karen Rohr	✓				
Rep. David Rust	✓				
Rep. John Wall					

TOTAL (YES) 11 (NO) 0 (ABSENT) 2

FLOOR ASSIGNMENT Rep. Koppelman

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1228: Education Committee (Rep. Nathe, Chairman) recommends **DO PASS**
(11 YEAS, 0 NAYS, 2 ABSENT AND NOT VOTING). HB 1228 was placed on the
Eleventh order on the calendar.

2013 HOUSE APPROPRIATIONS

HB 1228

2013 HOUSE STANDING COMMITTEE MINUTES

House Appropriations Committee Roughrider Room, State Capitol

HB 1228

2/7/13

18512

☐ Conference Committee

Committee Clerk Signature

Meredith Tracholt

Explanation or reason for introduction of bill/resolution:

A BILL for an Act to provide an appropriation for a science, technology, engineering, and mathematics advancement grant.

Minutes:

You may make reference to "attached testimony."

Chairman Delzer called the committee to order and a quorum was declared. These are not hearings on the rereferred bills. We'll start with HB 1228.

Rep. Ben Koppelman, District 16: Introduced the bill.

05:10

Chairman Delzer: From what you are saying, it's basically already in place; is this person they are talking about already in place?

Rep. Koppelman: I do not believe there is anyone in place. There is volunteer work involved currently. Some people are doing this work as an extension of their job to help out.

Chairman Delzer: Was this asked for in the governor's budget?

Rep. Koppelman: I don't recall that being asked specifically. I don't believe the dollars are in the budget, but I do believe the concept is supported in what the governor has been doing. This is a key element of the concept of promoting STEM education. Without it, districts across the state will be trying to reinvent the wheel. This executive director would be the organization of that statewide cooperation.

Chairman Delzer: Career and Tech, #270, is in the Senate now, I believe. Who testified in favor of this?

07:05

Rep. Koppelman: The director of the department of career and technical education came and explained how it would work. Department of Public Instruction came in, in favor; and several other people.

Chairman Delzer: Would this executive director be considered a state employee?

Rep. Koppelman: I don't believe that they would. It's designed as a grant to be given to an independent STEM network, to get up and running.

Chairman Delzer: Has this been introduced on the Senate side as well, where the budget is residing?

Rep. Koppelman: The question was asked, if it was contained in the career and technical education budget, and the answer was no. Has the concept been introduced over there, I don't know if that was specifically asked.

Rep. Grande: Looking at grant recipients, who they might be working with, will elementary and secondary education include private and parochial schools?

Rep. Koppelman: That was not brought up in discussion. If they are receiving state grant dollars, my understanding is they would be open to that sort of a concept. These funds are used just for the network itself, not to extend and pay for things at individual schools.

Rep. Wieland: Is it intended that this would be an ongoing appropriation?

Rep. Koppelman: This was designed as a pilot program. I'm not aware of the long term intent. The long term concept is that the participating school districts may be able to provide funding. It was not a specifically asked question. It was presented as a one-time expense.

Chairman Delzer: Was a budget presented with this, of how the \$200,000 would be spent each year? How much is wages, how much is operating?

Rep. Koppelman: The expectation was that once it was created, it would be repeated in year two. No budget was presented.

Rep. Nelson: How did this come to be a separate bill? You mentioned the governor is supportive of this program, yet it wasn't included in his budget.

Rep. Koppelman: I don't believe the governor specifically indicated he was supportive of this network being created and receiving this grant. But he is very supportive of integrating STEM into our education system and recognizing its importance. This was brought forward as a way to do that. The governor's support is more general.

Chairman Delzer: Further questions? Thank you. The committee continued on to the next bill.

2013 HOUSE STANDING COMMITTEE MINUTES

House Appropriations Committee Roughrider Room, State Capitol

HB 1228
2/20/13
Job 19238

☐ Conference Committee

Joelyn Gallagher

Explanation or reason for introduction of bill/resolution:

A BILL for an Act to provide an appropriation for a science, technology, engineering, and mathematics advancement grant.

Minutes:

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HB 1228

Rep. Dosch: I have an amendment to pass out.

Rep. Dosch: (1:00) Explained amendment .02002.

Chairman Delzer: It creates a continuing appropriation; how does that work as far as...the fund would still be there in the future. Where would it show up?

Rep. Dosch: They asked for the continuing appropriation.

Rep. Skarphol: (2:55) In BARS under Career & Tech, there are four lines in the category where they have their grants.

Chairman Delzer: It looks like it would give them a continuing appropriation on their whole line.

Rep. Skarphol: Wouldn't we have that distinction at least in the budget if this would be a separate line based on the amendment?

Chairman Delzer: I think we would have to put that in the amendment because the way it's worded, it might go to the whole thing.

Rep. Skarphol: Would there be opposition to having that distinction made in the Career & Tech budget.

Rep. Dosch: That would be fine

Chairman Delzer: Can we make sure if this passes, it gets done that way?

Sheila Sandness, LC: You want a separate line item for these particular grants in their budget, that's the request?

Chairman Delzer: Any time we start a continuing appropriation on anything we should have some sort of reporting requirement to know what is going on and what they're getting. I would like to see something like that in the amendment if this goes forward.

Rep. Sanford: This is for the ND STEM network, that it goes towards an Executive Director?

Chairman Delzer: We asked for a breakdown of the \$400,000 and that's where the 160 is coming from because it was 80,000 a year for the director.

Rep. Sanford: So the grants that come in, the continuing authorization would essentially staff, and the grants or industry participation could go into this grants line?

Chairman Delzer: It probably ends up all being put on the grants line. A continuing appropriation does not go on the bill at all and that's part of the problem, we don't see that. That's why it needs to be limited just to this amount.

Chairman Delzer: We don't have a motion on the floor, what are your wishes?

Rep. Dosch: Incorporating the items you brought up about listing it as a separate line item on their budget and restricting the continuing appropriations specifically to this.

Chairman Delzer: It wouldn't show up in a line item on the budget unless we request it be listed and brought forward each year.

Sheila Sandness: Correct, with a continuing appropriation it wouldn't be in their budget beyond the 160 you're putting in so you might add the 160.

Chairman Delzer: We want reporting requirements on the continuing appropriation. We want limiting language that would make it so this doesn't affect any of the grants line so they don't get any continuing appropriation for anything except this item.

Sheila Sandness: You want to make sure the language for the continuing appropriation is relative only to these types of grants.

Lori: According to the language it creates a new section. It wouldn't apply to the other grants in the department.

Chairman Delzer: If that's covered then we need the language for reporting requirements probably to the next legislative assembly to be brought in with the career and tech bill.

Lori: The agencies also do have to report on all the continuing appropriations with their budget request.

Chairman Delzer: We want it highlighted more than just the continuing appropriation, we want actual dollars and the full report be brought forward when the budget is brought forward.

Rep. Dosch: With the changes made and incorporating the reporting requirements, I would move the amendment - .02002.

Chairman Delzer: We have a second by Rep. Grande.

Rep. Glassheim: You want reporting requirements but it would be all on private monies raised.

Chairman Delzer: The continuing appropriation's also the 160 we put in there.

Rep. Glassheim: I don't believe that's so Mr. Chairman. That's a different section, section 1 in the amendment is just the grant line and the 160 is in section 2, appropriation, I believe.

Chairman Delzer: We better have a marked up bill on this. Sheila, why don't you put together the amendment the way we were talking about and what you think it is. Let's get a marked up bill before we go forward.

Chairman Delzer: Rep. Dosch, the easiest thing would be if you withdrew your motion to amend at this time.

Rep. Dosch: I withdraw my motion.

2013 HOUSE STANDING COMMITTEE MINUTES


House Appropriations Committee Roughrider Room, State Capitol

HB 1228

2/21/13

Job 19315

☐ Conference Committee



A BILL for an Act to provide an appropriation for a science, technology, engineering, and mathematics advancement grant.

Minutes:

Chairman Delzer: On 1228, discussion on amendment we have before us. The Chairman described amendment 13.0183.02003.

Rep. Dosch: I move a do pass on the amendment.

Chairman Delzer: We have a motion to amend with 2003 made by Rep. Dosch, second by Rep. Kempenich. Any discussion?

Rep. Pollert: Does this put this as a line item under the grants like with the same area as the adult farm management?

Chairman Delzer: No, it will not show up on the bill, that's why the reporting requirements.

Rep. Kempenich: When you do go to the explanation on the bill there is a grants line but it doesn't specifically say what this is.

Chairman Delzer: This will not be part of the career and tech bill.

Chairman Delzer: All in favor of amending HB 1228 with amendment 2003, signify by saying Aye, opposed Nay. Motion carried.

Rep. Dosch: I move the do pass as amended.

Chairman Delzer: We have motion for a do pass as amended, second by Rep. Wieland. Discussion, (4:25)

Rep. Kempenich: (4:50) Discussion continues. This is one area we seem to be weak in.

Rep. Skarphol: Is it the sponsors hope or expectation that will fund it, or do you anticipate a recurring appropriation from the general fund?

Rep. Dosch: Yes, that has been relayed to me; they need this to get it off the ground.

Chairman Delzer: One of their biggest jobs would be to try to get corporate sponsorships.

Chairman Delzer: Clerk will call roll for a do pass as amended on HB 1228. Motion carries, 19-3-0. Rep. Dosch will carry that bill.

2/21/13
CJN

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1228

Page 1, line 1, after "to" insert "create and enact a new section to chapter 15-20.1 of the North Dakota Century Code, relating to science, technology, engineering, and mathematics advancement grants; to"

Page 1, line 1, remove "for a science, technology, engineering, and

Page 1, line 2, replace "mathematics advancement grant" with "; and to provide a continuing appropriation"

Page 1, after line 3, insert:

"**SECTION 1.** A new section to chapter 15-20.1 of the North Dakota Century Code is created and enacted as follows:

Science - Technology - Engineering - Mathematics - Grants - Continuing appropriation - Report.

1. The department of career and technical education may accept gifts, grants, and donations for the purpose of providing science, technology, engineering, and mathematics advancement grants.
2. Grant recipients shall focus on facilitating, coordinating, and advancing science, technology, engineering, and mathematics initiatives in this state, and shall work with representatives of elementary and secondary education, tribal schools, higher education, and private sector industries to strengthen educational opportunities, align the educational opportunities with economic development and workforce needs, and ensure the existence of a creative and productive workforce with the skills and knowledge to be globally competitive.
3. All moneys received under this section are appropriated on a continuing basis to the department of career and technical education for the purpose of providing science, technology, engineering, and mathematics advancement grants. The department of career and technical education shall report to the appropriations committees of each legislative assembly on funds received and the use of the funds."

Page 1, line 5, replace "\$400,000" with "\$160,000"

Renumber accordingly

STATEMENT OF PURPOSE OF AMENDMENT:

This amendment establishes a science, technology, engineering and mathematics advancement grant program and allows the Department of Career and Technical Education to accept funding and provide grants through a continuing appropriation. The department must report to the Appropriations Committees each legislative session regarding the funds received and the use of the funds.

Date: 2/20/13
Roll Call Vote #: 1

2013 HOUSE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 1228

House Appropriations Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken: ☐ Do Pass ☐ Do Not Pass ☐ Amended ☒ Adopt Amendment
☐ Rerefer to Appropriations ☐ Reconsider

Motion Made By Rep. Dosch Seconded By Rep. Grande

Representatives	Yes	No	Representatives	Yes	No
Chairman Delzer			Rep. Streyle		
Vice Chairman Kempenich			Rep. Thoreson		
Rep. Bellew			Rep. Wieland		
Rep. Brandenburg					
Rep. Dosch					
Rep. Grande			Rep. Boe		
Rep. Hawken			Rep. Glassheim		
Rep. Kreidt			Rep. Guggisberg		
Rep. Martinson			Rep. Holman		
Rep. Monson			Rep. Williams		
Rep. Nelson					
Rep. Pollert					
Rep. Sanford					
Rep. Skarphol					

Total Yes _____ No _____

Absent _____

Floor Assignment _____

If the vote is on an amendment, briefly indicate intent:

.02002 + listing as separate line item on budget
and restricting

language for continuing approp. is only for
these kinds of grants
+ reporting to next legislative assembly

withdrawn

Date: 2/21/13
Roll Call Vote #: 1

2013 HOUSE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 1228

House Appropriations Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number -02003

Action Taken: ☐ Do Pass ☐ Do Not Pass ☐ Amended ☒ Adopt Amendment
☐ Rerefer to Appropriations ☐ Reconsider

Motion Made By Rep. Dosch Seconded By Rep. Kempenich

Representatives	Yes	No	Representatives	Yes	No
Chairman Delzer			Rep. Streyle		
Vice Chairman Kempenich			Rep. Thoreson		
Rep. Bellew			Rep. Wieland		
Rep. Brandenburg					
Rep. Dosch					
Rep. Grande			Rep. Boe		
Rep. Hawken			Rep. Glassheim		
Rep. Kreidt			Rep. Guggisberg		
Rep. Martinson			Rep. Holman		
Rep. Monson			Rep. Williams		
Rep. Nelson					
Rep. Pollert					
Rep. Sanford					
Rep. Skarphol					

Total Yes _____ No _____

Absent _____

Floor Assignment _____

If the vote is on an amendment, briefly indicate intent:

voice vote carries

Date: 2/21/13
Roll Call Vote #: 2

**2013 HOUSE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 1228**

House Appropriations Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken: ☒ Do Pass ☐ Do Not Pass ☒ Amended ☐ Adopt Amendment
☐ Rerefer to Appropriations ☐ Reconsider

Motion Made By Rep. Dosch Seconded By Rep. Wieland

Representatives	Yes	No	Representatives	Yes	No
Chairman Delzer		X	Rep. Streyle	X	
Vice Chairman Kempenich	X		Rep. Thoreson	X	
Rep. Bellew		X	Rep. Wieland	X	
Rep. Brandenburg	X				
Rep. Dosch	X				
Rep. Grande	X		Rep. Boe	X	
Rep. Hawken	X		Rep. Glassheim	X	
Rep. Kreidt	X		Rep. Guggisberg	X	
Rep. Martinson	X		Rep. Holman	X	
Rep. Monson	X		Rep. Williams	X	
Rep. Nelson	X				
Rep. Pollert		X			
Rep. Sanford	X				
Rep. Skarphol	X				

Total Yes 19 No 3

Absent 0

Floor Assignment Rep. Dosch

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1228: Appropriations Committee (Rep. Delzer, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (19 YEAS, 3 NAYS, 0 ABSENT AND NOT VOTING). HB 1228 was placed on the Sixth order on the calendar.

Page 1, line 1, after "to" insert "create and enact a new section to chapter 15-20.1 of the North Dakota Century Code, relating to science, technology, engineering, and mathematics advancement grants; to"

Page 1, line 1, remove "for a science, technology, engineering, and

Page 1, line 2, replace "mathematics advancement grant" with "; and to provide a continuing appropriation"

Page 1, after line 3, insert:

"**SECTION 1.** A new section to chapter 15-20.1 of the North Dakota Century Code is created and enacted as follows:

Science - Technology - Engineering - Mathematics - Grants - Continuing appropriation - Report.

1. The department of career and technical education may accept gifts, grants, and donations for the purpose of providing science, technology, engineering, and mathematics advancement grants.
2. Grant recipients shall focus on facilitating, coordinating, and advancing science, technology, engineering, and mathematics initiatives in this state, and shall work with representatives of elementary and secondary education, tribal schools, higher education, and private sector industries to strengthen educational opportunities, align the educational opportunities with economic development and workforce needs, and ensure the existence of a creative and productive workforce with the skills and knowledge to be globally competitive.
3. All moneys received under this section are appropriated on a continuing basis to the department of career and technical education for the purpose of providing science, technology, engineering, and mathematics advancement grants. The department of career and technical education shall report to the appropriations committees of each legislative assembly on funds received and the use of the funds."

Page 1, line 5, replace "\$400,000" with "\$160,000"

Renumber accordingly

STATEMENT OF PURPOSE OF AMENDMENT:

This amendment establishes a science, technology, engineering and mathematics advancement grant program and allows the Department of Career and Technical Education to accept funding and provide grants through a continuing appropriation. The department must report to the Appropriations Committees each legislative session regarding the funds received and the use of the funds.

2013 SENATE EDUCATION

HB 1228

2013 SENATE STANDING COMMITTEE MINUTES

Senate Education Committee
Missouri River Room, State Capitol

HB 1228
3-13-13
19823

☐ Conference Committee

Committee Clerk Signature

Tiffany J. Grossman

Explanation or reason for introduction of bill/resolution:

A BILL for an Act to create and enact a new section to chapter 15-20.1 of the North Dakota Century Code, relating to science, technology, engineering, and mathematics advancement grants; to provide an appropriation; and to provide a continuing appropriation

Minutes:

You may make reference to "attached testimony."

Chairman Flakoll opened the hearing on HB 1228

Representative Lisa Meier District 32: This will establish a statewide student center STEM network to support K-12 Education. (Written Testimony #1 attached) 1:55

Wayne Kutzer, Director of the Career and Technical Education: I wish to testify in support. (Written Testimony #3 attached and #2 charts and info attached) 2:52

Chairman Flakoll: If we liked this bill we could pass it with the 160 in it and they could request the difference?

Wayne Kutzer: Absolutely

Senator Luick: How would this money be used?

Wayne Kutzer: It will be used for a person. Everyone involved with the STEM network has another job. They are trying to find someone that can be dedicated to help coordinate the activities going on in the different areas of the state so it is going to be looking at hiring an entity or person to do this.

Doug Johnson, NDCEL: We are in support of HB 1228. We focused our summer conference this summer on the STEM initiative and the network was valuable for us helping put the conference together. It was very well received.

Matt Strinden, Director of Teacher and School Effectiveness at DPI: The Department of Public Instruction wishes to support this. (Written Testimony #4 attached) 5:50

Chairman Flakoll: The money flows through your office?

Matt Strinden: The money flows through CTE.

Paul Keidel, Missouri River Education Cooperative/BPS/ND STEM Network: I wish to testify in support of HB 1217. Written Testimony #5 attached (Ended at 9:45)

Senator Marcellais: How many students in Bismarck are taking advantage of this program right now?

Paul Keidel: At the career academy we have over 600 students working on project based problem solving activities. We also have another 600 elementary students who are working on robotics engineering. All of our 3rd and 4th grade students work in stem projects. Our goal is to move into 5th and 6th grade. We also have a new innovative high school plan for 2015 and are studying teacher strategies.

Senator Luick: Do the consortiums set up for high tech equipment help expand or improve?

Paul Keidel: I work with the MRIC already. They bought half of my contract from Bismarck Public Schools because they saw what was happening with the STEM activities in the Bismarck schools so I have moved into the REAs already and so I am already working on pilot STEM projects in the REAs.

Senator Marcellais: Are any of our Native American Schools participating in STEM?

Paul Keidel: Yes. There are a number of programs going on. The Native American Communities are included in the ND STEM network.

David DeMuth Jr., Executive Director of the Great Plains STEM Education Center at VCSU: I wish to testify in support of HB 1217. (Written Testimony #6 attached) Ended at 17:15

Senator Heckaman: What is your understanding of the need for funding? We heard there is \$400,000 in the CTE budget. This has an appropriation of \$160,000. Is that needed above the \$400,000?

David DeMuth Jr.: No. It was a conservative estimate and we hope that after years of partnering we will see that number go to 5 and 6 but that will be on our own. The \$400 will be sufficient.

Senator Poolman: I love your phrasing talking about teaching science, technology, engineering, and mathematics simultaneously. Do you see the structure of our American High School today as being a major barrier to that? Are there answers we can help you with in terms of teaching these topics and subjects simultaneously?

David DeMuth Jr.: It is not easy. It is a trans disciplinary approach and our teachers aren't there yet. That is what centers like CTE and GP are trying to do. A lot of what we do is professional development. We go to the reservations and professionally train teachers. At

Valley City we hope to inject this into pre-service teaching so when they graduate they are ready to do. Now we are not there and nationally we are part of an effort and movement that is here to state and will make it easier for us in the future. It is not easy and it is time consuming but it is magically effective and our kids are getting STEM focused.

Senator Marcellais: I wish this program was available when I went to school. Can you get more detail about the tribal partners?

David DeMuth Jr.: We are working with Sitting Bull College and Standing Rock Reservation. We are doing planetarium training and taking a group to Yellowstone to track wolves. We are teaching how to do precision measurements at 2nd or 3rd grade. We are trying with both the teachers and students. We are doing some fun things out there. There is good effort going on. That has been our focus.

Senator Marcellais: Is there a sharing of culture with this?

David DeMuth Jr.: There is particularly when you look at the Native American's regard for this night sky. We have constellations and we have the Western approach. We are very culturally sensitive when we approach them. We learn from them. We try to explain our perspective and listen to their perspective and it comes together nicely.

Senator Heckaman: I have heard of CORD curriculum because it takes the basics of math and applies it into every occupation you can think of. Would that be something you support or don't you support specific materials?

David DeMuth Jr.: As a network, we would learn from you. This is working for your school and other schools might like to learn this. We can rely on components to help take that to another school. There is some research going on

Senator Heckaman: We are using it as a bridge between pre-algebra and algebra or algebra and algebra two on the reservation in the alternative high school there.

John Godfrey, Greater North Dakota Chamber: We are standing in support. We have been partnering with Wayne and Doug and are starting to build a relationship with the educational community understanding that our workforce needs are astronomical in the state. We have a great deal of STEM need in our state and our goal is to partner with the educational leaders in our state and make North Dakota a STEM leader and be able to provide for our workforce. We understand tomorrow's workforce is currently in school and in the educational system and we need to train them appropriately. We urge the support.

Chairman Flakoll: Would you help fundraise?

John Godfrey: I think we could. We have some members of the Succeed 2020 program that we are a part of. We have a lot of members that are ready, willing, and able but don't know where to help. The more we can get these programs streamlined, the more we can direct them in the right directions.

Chairman Flakoll: Representative Meyer, please come to the podium.

Chairman Flakoll: Were these the Meyer amendments on the engrossed bill?

Representative Lisa Meyer: Yes

Chairman Flakoll: Do you believe people would financially participate?

Representative Lisa Meyer: Yes it is my belief.

Chairman Flakoll: Would you support the bill if we were to pass it out clean and lock down the \$160,000 and work through the remaining portion as we work through the session.

Representative Lisa Meyer: I would support the bill as is. Between the House Appropriations and Senate Appropriations, the sense is that there is enough support to come together and restore the \$400,000 appropriation. It was a strong urging of the House Appropriations to have the \$400,000 within the career and technical budget although because of timing, the individuals that have spoken on this bill and myself got together but there was no time to have it in the budget. We worked to put this together in a single form bill because we felt it was important enough to go forward with it.

Senator Marcellais: Do you feel the costs of this program will be reduced because of sharing resources between entities?

Representative Lisa Meyer: Correct. The volunteers kept the network going. We see in the future that with the private entities that want to contribute towards this initiative, along with some grant writing, I know there is a lot of money out there even within the states and federal government to do the STEM. The goal eventually is to have this self-standing with financial support from private entities and grants.

Senator Marcellais: So you are looking to the future where you would have a zero base budget where you use the customers to pay for the services they are getting?

Representative Lisa Meyer: That would be the wish of those that testified and the wish for myself as well.

Chairman Flakoll: closed the hearing on HB 1228

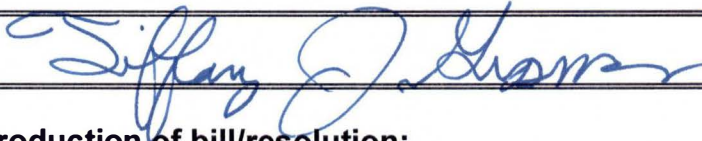
2013 SENATE STANDING COMMITTEE MINUTES

Senate Education Committee
Missouri River Room, State Capitol

HB 1228
3-13-13
19825

☐ Conference Committee

Committee Clerk Signature



Explanation or reason for introduction of bill/resolution:

A BILL for an Act to create and enact a new section to chapter 15-20.1 of the North Dakota Century Code, relating to science, technology, engineering, and mathematics advancement grants; to provide an appropriation; and to provide a continuing appropriation

Minutes:

You may make reference to "attached testimony."

Chairman Flakoll opened the hearing on HB 1228

Vice Chairman Schaible: Move a Do pass for Engrossed HB 1228 and Re-refer to appropriations

Senator Poolman: Second

Senator Heckaman: We heard compelling testimony today that this is a good idea for the advancement of the STEM technology across the state of North Dakota but also for the future of our industries and businesses. Instead of sending them out of state, let's do it here.

Senator Marcellais: I might go back and take calculus because I didn't take that in high school.

A roll call vote was taken for a Do pass and Re-Refer to Appropriations for Engrossed HB 1228: 6 yeas, 0 neas, 0 absent

Senator Poolman: will carry

Date: 3-13-13

Roll Call Vote #: 1

2013 SENATE STANDING COMMITTEE
ROLL CALL VOTES

BILL/RESOLUTION NO. 1228

Senate Education Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken: ☒ Do Pass ☐ Do Not Pass ☐ Amended ☐ Adopt Amendment

☒ Rerefer to Appropriations ☐ Reconsider

Motion Made By Schaible Seconded By Poolman

Senators	Yes	No	Senator	Yes	No
Chairman Tim Flakoll	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Senator Joan Heckaman	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vice Chairman Donald Schaible	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Senator Richard Marcellais	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Senator Larry Luick	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Senator Nicole Poolman	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

Total (Yes) 6 No 0

Absent 0

Floor Assignment Poolman

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1228, as engrossed: Education Committee (Sen. Flakoll, Chairman) recommends DO PASS and BE REREFERRED to the Appropriations Committee (6 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). Engrossed HB 1228 was rereferred to the Appropriations Committee.

2013 SENATE APPROPRIATIONS

HB 1228

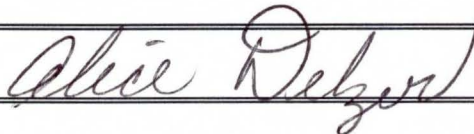
2013 SENATE STANDING COMMITTEE MINUTES

Senate Appropriations Committee Harvest Room, State Capitol

HB 1228
03-20-2013
Job # 20201

☐ Conference Committee

Committee Clerk Signature



Explanation or reason for introduction of bill/resolution:

A BILL relating to science, technology, engineering and mathematics advancement grants.
(DO PASS)

Minutes:

See attached testimony.

Chairman Holmberg called the committee to order on Wednesday, March 20, 2013 at 8:30 am in regards to HB 1228. Roll call was taken. All committee members were present. Brittani Reim from Legislative Council and Joe Morrisette from OMB were also present.

Senator Robinson: In consideration of time Dr. David DeMuth, Jr. from the Great Plains STEM Education Center in Valley City is here to provide a few remarks to the committee and that would cover our needs in terms of sponsor presentation.

Chairman Holmberg: You should be looking at the engrossed bill which has \$160,000 in it.

Dr. David DeMuth, Jr, Executive Director of the Great Plains STEM Education Center at VCSU testified in support of HB 1228 and provided written Testimony attached # 1 which gives information regarding the STEM programs. (4.52)

Senator Mathern: What was the rationale for the new section put on the front? What happened from the original bill until now? What was the rationale for adding this other material, section 1?

Dr. DeMuth, Jr: asked Wayne Kutzer if we could speak to that.

Chairman Holmberg: Why don't we finish with questions for Dr. DeMuth and then we'll have Wayne come up and talk about it. As you know the original bill was just an appropriation.

Senator Carlisle: Why is this a stand-alone bill? Could this be part of an education budget?

Dr. DeMuth, Jr: Ultimately I think it could be. We are proud that it is a stand-alone bill and that we've made it this far. As I point out in my testimony we believe it would be more genuine and inclusive as a stand-alone.

Vice Chairman Grindberg: (6.14) As a recap we passed out the Career and Vocational Education budget and a resolution and the Senate declaring Career & Vocational Education as a coordinating collaborating entity for STEM activities. We put \$400,000 in the budget for this purpose. It is now over in the House. The rationale was we would have something to talk about in conference committee knowing that if this bill made it to us so what I envision this bill passes it's \$160,000 towards the \$400 and we'll have the rest to discuss in Career and Vo Ed's conference committee? My question is there has been a lot of discussion over STEM over the last 6 to 8 years. ND has made commitments in that arena. there was bill earlier in the House that added Arts to the whole equation and personal involvement in a former capacity in my community with creating an ESTEEM network (Encouraging Science, Technology, Engineering, Entrepreneurship and Math) and as you look nationally state by state strategies around STEM, in your opinion would you be opposed to having more strength in this language with entrepreneurship?

Dr. DeMuth, Jr.: (7.41) No. I am not opposed to these and the arts as well. I am not interested in the debate. We know that STEM is truly inclusive and to do the STEM the way I am describing it does involve entrepreneurship innovation. What the network would bring is more case scenarios as how it's done. The ND STEM network is modeled after Ohio, Tenn, Iowa, so there are other networks. They do it in different ways, whether they do it in DPI or not or if it's a stand-alone but innovation is the finest output of this in really driving new technologies, as our employees say we don't even know what we want our employees to be able to do yet, other than critically think problem solve, and that's a key attribute of this STEM. I would agree with innovation entrepreneurship.

Chairman Holmberg: Wayne, would you like to address questions that have been raised?

Wayne Kutzer, Director, Career and Technical Education: (9.23) provided Testimony attached # 2, which states we support HB 1228. Our role in this to provide a vehicle for funding and grant funds to the ND STEM network through VCSU, who will act as a fiscal agent. (10.40)

You asked why is it a separate bill? They came to our agency long after we had submitted our budget in June. And so the STEM network came and asked if our agency would be the fiscal agent for this, so that's how it ended up as a separate bill and eventually got wound to our bill. Senator Mathern, you asked the question about why the first part of the bill, why that was added in, the best response I can give to you is on the House side, that they wanted to make sure that, the main emphasis, these are one time funds, and so the network is designed to be able to go out and use these funds as a start-up and to be able to go out and collect funds or get funds for their entities. This would allow us as an agency to collect those also. I didn't know that it would necessarily be needed because the network be able to stand on their own, but this would also allow our agency, for example, if there were funds that were granted for the STEM network for outside entities this would allow us to have those funds and utilize them.

Senator Gary Lee : (12.10) Why is Valley City the fiscal agent? Why were they chosen?

Mr. Kutzer: Valley City has a large grant, the name is the Great Plains STEM Network. They have been working with schools. They've been working with this federal grant they've had. This is like an extension of that. Valley City will be involved with it, but VCS will be the fiscal agent for that STEM network.

Chairman Holmberg: Is it very similar to in Higher Ed the space grant, which the fiscal agent is at UND but it works with all the campuses around the state.

Senator Mathern: (13.27) Why wouldn't your agency be the fiscal agency?

Mr. Kutzer: When the group came and discussed it, part of the discussion was they didn't want to cause a lot of extra work for our agency to manage those dollars. That's where it was decided that Valley City State University would be the fiscal agent. While we can basically write one check for the grant funds and not have to track those, Valley City will be responsible for that and we'll be watching what they do.

Chairman Holmberg: Anyone else wishing to testify on 1228? No one responded. Then we will close the hearing on HB 1228.

Vice Chairman Grindberg Moved a Do Pass. 2nd by Senator Robinson .

Senator Carlisle: The idea would be to net out at \$400,000, is that right. That was confirmed

Chairman Holmberg: Call the roll on a Do Pass on HB 1228.

A Roll Call vote was taken. Yea: 13; Nay: 0; Absent: 0.

Chairman Holmberg: This will go back to the Education Committee. **Senator Poolman will carry the bill.**

The hearing was closed on HB 1228.

Date: 3-20-13Roll Call Vote # 1

**2013 SENATE STANDING COMMITTEE
ROLL CALL VOTES**

BILL/RESOLUTION NO. 1228

Senate Appropriations Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken

☐ Adopt Amendment

☐ Do Pass as Amended

☒ Do Pass

☐ Do Not Pass

Motion Made By

Grindberg

Seconded By

Robinson

Senators	Yes	No	Senator	Yes	No
Chairman Ray Holmberg	✓		Senator Tim Mathern	✓	
Co-Vice Chairman Bill Bowman	✓		Senator David O'Connell	✓	
Co-Vice Chair Tony Grindberg	✓		Senator Larry Robinson	✓	
Senator Ralph Kilzer	✓		Senator John Warner	✓	
Senator Karen Krebsbach	✓				
Senator Robert Erbele	✓				
Senator Terry Wanzek	✓				
Senator Ron Carlisle	✓				
Senator Gary Lee	✓				

Total (Yes) 13 No 0

Absent 0

Floor Assignment

Educator Poolman

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1228, as engrossed: Appropriations Committee (Sen. Holmberg, Chairman)
recommends **DO PASS** (13 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING).
Engrossed HB 1228 was placed on the Fourteenth order on the calendar.

2013 TESTIMONY

HB 1228

ND STEM NETWORK

63rd LEGISLATIVE ASSEMBLY | SPONSOR: MEIER

WHO

The ND STEM Network is comprised of university, college, government, and industry partners who form a collaborative partnership vested in supporting a state-wide P-16 pipeline into the Science, Technology, Engineering and Mathematics (STEM) professions. Key Stakeholders include universities at Valley City, Fargo, Grand Forks, Mayville, Minot, and Dickinson, colleges at Bismarck, Bottineau, Wahpeton, Williston and Devils Lake, ND reservations, and industries such as John Deere, Sanford, AES220, and Montana-Dakota.

WHAT

COORDINATION

of the implementation of STEM educational strategies across four geographical regions in North Dakota and among our Native American communities, initially as professional trainings for teachers, but also via after-school programs, competitions, summer camps, and similar activities/projects. In inventorying capacities, leveraging strengths, sharing lessons learned, our aim is a growth of a hardened and efficient network focused on what really matters, students and our economy.

INTEGRATION

of the Engineering Design process alongside inquiry and project-based learning into the school day for all learners as standards-based strategies to produce a student who is both innovative and entrepreneurial, and above all college ready, who is adaptable, and committed to a life of learning.

ASSESSING

quality and impact to ensure North Dakota youngsters can compete for the numerous jobs that are and will be filled by non-residents is an essential part of the Network, as is emphasizing the importance of female and under-represented minorities in a global marketplace, specifically in aid of business ventures in North Dakota and the surrounding regions.

WHEN

FROM 2010 TO THE PRESENT

as a national dialog on a critical workforce need in the STEM disciplines evolved, Valley City State University initiated the dialog to host a STEM collaborative in ND. Modeled after the Ohio Learning, Empire State, and NCSTEM STEM networks by the Teaching Institute for Excellence in STEM, it was determined that a ND STEM Network could leverage resources at ND universities and colleges, state agencies, K-12 schools, alongside industry to produce a robust efficient resource.

INTO 2013 AND BEYOND

we seek legislation that will establish a state-wide student-centric STEM Network in North Dakota, then leveraging this investment to obtain funding from business, industry, and other private funders to support the Network's ongoing and expanding work.

WHERE

Key Stakeholders located throughout the state working collaboratively to support all ND students, teachers, and administrators.

WHY

Recognition that the fastest growing occupations in the United States depend upon mastery of mathematics and scientific knowledge and skills, and that students are not currently equipped to satisfy this growing need. Implicit is an overarching goal of improving the quality of education for all students through science, technology, engineering and mathematics. Supporting STEM as a rising and effective methodology will assert to the Nation that North Dakota is among the strongest in education integration, coordination, efficiency and output that supports a strong economy.

TESTIMONY ON HB 1228
House Education Committee
1/21/2013


By: Matt Strinden, Director of Teacher & School Effectiveness
701-328-2755
Department of Public Instruction

Mr. Chairman and Members of the Committee:


My name is Matt Strinden and I am the Director of Teacher & School Effectiveness for the Department of Public Instruction. I am here to speak in favor of HB 1228 and STEM education.

In today's competitive job market, it is our responsibility to provide a high quality education for our North Dakota students and a focused effort on Science, Technology, Engineering and Mathematics plays an important role in that endeavor. The increased development of North Dakota's STEM initiative will assist our educators in providing students with the highly desired skills and abilities to be competitive locally, within the United States and abroad.


This effort will help schools make connections to business and industry, which will provide our students "real world" opportunities and afford them the ability to utilize their skills and apply them in the field. In addition to these increased student internship opportunities, this bill will aide educators in gaining access to the resources and connections of our business and industry partners to provide additional authentic learning experiences for our students within the classroom.



Our department is excited about the possibilities that the STEM initiative has to change the way that we approach the education of our students. We have seen, first hand, from North Dakota's first STEM focused middle school in West Fargo how the use of STEM principles combines multiple subject areas in large projects in order to help students better understand how all subjects are interconnected and personally connect with the project. Thus far, they have seen great success in their school as demonstrated by the excitement of their students and parents about this new model.



The future of our state and country's economic competitiveness depends greatly on how well our students perform in STEM fields. The Commerce Department recently released a study that highlights the fact that growth in STEM jobs grew three times faster over the past 10 years than non-STEM jobs. In short, if we are to keep up with our global competitors, we must step up our investments in STEM education. Our department staff looks forward to working with the STEM initiative in North Dakota and supporting efforts to provide a world-class, high quality education to prepare our students^{to} go out and become tomorrow's leaders and innovators.



I would like to thank you for your leadership on this critical issue and will respond to any questions that you might have at this time.

Good morning Mr. Chairman and committee members, for the record, my name is David DeMuth, and I serve as Executive Director of the Great Plains STEM Education Center at Valley City State University.

Thank you for the opportunity to tell our story and to speak in support of this important legislation that will benefit North Dakota's students, teachers, and ultimately our states workforce.

Our State and Nation faces a dilemma that affects us all, and business leaders have sounded the alarm:

TO STAY COMPETITIVE, PROFITABLE, AND SUSTAINABLE
EMPLOYERS SEEK HIGHLY SKILLED EMPLOYEES WITH CAPACITIES
IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH, BUT
UNFORTUNATELY THE DOMESTIC PIPELINE OF TALENT IS TOO
SMALL AND WE CANNOT KEEP UP WITH THE DEMAND!

In North Dakota, we know there are more jobs than people to fill them, and that retention of employees is sometimes difficult.

For every unemployed person in ND there are 8.6 jobs in these STEM fields, where in non-STEM fields, there is 1.5 unemployed people for 1 job - that is for STEM there is under-capacity in the labor force, and for non-STEM over-capacity.

Many of these jobs are new, never imagined. Consider John Deere whose Seeding Group recently announced an expanded portfolio in Valley City, and who has an excitingly large footprint in Fargo.

Traditionally known for its quality agriculture and turf equipment, their company has expanded beyond agriculture and residential industries, products are being built for golf and sports, commercial, construction, forestry, government, even the military.

Consider John Deere's military Gator VS personal transport vehicles, their design is highly specialized, rugged, fast, fuel efficient, and affordable, requirements not easily demonstrated in one product, and an effort that acknowledges the importance of a diverse disciplinary team as essential.

A team such as this must have all of the STEM skills; these teams must be innovative, adaptive, creative, be tenacious problem solvers, nimble, and great communicators. That is to say this team must possess “21st Century Skills,” and what I like to suggest, “21st Century Skills with 22nd Century Imagination.”

This workforce pipeline starts in the schools, and it can’t wait until the college years. It is well known that if a student delays until 9th grade to decide to pursue any of the STEM fields, that it is too late, because the Mathematics needed to be successful is an iterative progression.

Fact: In ND student scoring at or above proficiency in math and science is 47% and 49% among 8th grade students with slightly higher percentages for 4th graders. That is, in 2009 and 2011 half are successful, half are not!

The bottom line is that we have to do better, and we have to start younger.

Recognizing that STEM education is closely linked with our nation’s economic prosperity in the modern global economy, that STEM is a key component within important educational reform initiatives, and that strong STEM skills are a central element of a well-rounded education, and are essential to effective citizenship, VCSU through the assistance of over one million dollars in federal support, formed the Great Plains STEM Education Center in 2010.

The goal, to provide professional training to K-12 teachers in all of the STEM areas utilizing high quality, teacher-tested and researched curriculum which may be straightforward to implement, but not necessarily easy to achieve.

In-service teachers however are busy (busy) people and integrating new high-impact learning strategies requires significant work that requires an infrastructure of support.

What the GPSEC strives to do is to establish sustainable relationships with our school districts and their teachers to support their ability to deliver high quality STEM education.

To us at the Great Plains STEM Education Center, it's all about student learning and service to our K-12 teachers throughout region.

And we are not alone in this endeavor!

Partners with similar goals include other universities in the North Dakota University System along with other state agencies as well as numerous industry partners such as John Deere and Sanford Medical.

VCSU has led the development of a STEM Network as a state-wide effort to organize universities, colleges, industry, government, and business partners who share the perspective that STEM skills are essential for our local and national economies and for our own health and welfare.

This Legislation to further support the ND STEM Network will establish an efficient framework to assist the State in meeting the workforce and innovation demand required to sustain a vibrant and modern economy.

Our goal is to demonstrate in four years a state-wide sustainable and durable model for deploying STEM which is beneficial first and foremost to our students and their teachers, and then naturally to the businesses that will hire them in coming years.

The importance of supporting the entire pipeline is essential, particularly as these students arrive at college campuses readied for success; measurable by a reduced reliance on remedial courses as Freshman, and an increase retention and graduate rates, consistent with Chancellor Hamid Shirvani's goals for the North Dakota University System.

Thank you again for the opportunity to address you today.

Web Version: <http://bit.ly/11JK8E9>

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1228

Page 1, line 1, after "to" insert "create and enact a new section to chapter 15-20.1 of the North Dakota Century Code, relating to science, technology, engineering, and mathematics advancement grants; to"

Page 1, line 1, remove "for a science, technology, engineering, and"

Page 1, replace line 2 with "; and to provide a continuing appropriation."

Page 1, after line 3 insert:

"**SECTION 1.** A new section to chapter 15-20.1 of the North Dakota Century Code is created and enacted as follows:

Science - Technology - Engineering - Mathematics - Grants - Continuing appropriation.

1. The department of career and technical education may accept gifts, grants, and donations for the purpose of providing science, technology, engineering, and mathematics advancement grants.
2. Grant recipients must focus on facilitating, coordinating, and advancing science, technology, engineering, and mathematics initiatives in this state, and must work with representatives of elementary and secondary education, tribal schools, higher education, and private sector industries to strengthen educational opportunities, align the educational opportunities with economic development and workforce needs, and ensure the existence of a creative and productive workforce with the skills and knowledge to be globally competitive.
3. All moneys received under this section are appropriated on a continuing basis to the department of career and technical education for the purpose of providing science, technology, engineering, and mathematics advancement grants."

Page 1, line 5, replace "\$400,000" with "\$160,000"

Re-number accordingly

HB 1228

Thank you Chairman Flakoll and members of the Senate Education Committee

For the record my name is Rep. Lisa Meier of Dist. 32, Bismarck.

STEM stands for Science, Technology, Engineering, and Mathematics.

STEM is critical in K-12 education to help equip our students to what they need to be college ready in order to pair up with what our economy needs.

This legislation will establish a state wide student-centric STEM network in North Dakota, to support STEM Education in K-12 education in North Dakota. This legislation will then leverage this investment to obtain Funding from business, industry, and other private sources to support the networks ongoing and expanding work.

The bill has a \$160,000 fiscal note in order to get this important opportunity off the ground.

Supporting this piece of legislation will assert to the nation that we want to equip our students to compete in a strong economy.

Thank you Mr. Chairman and Committee members

#2



ND STEM Network Estimated Annual Budget

Statewide Network Management	\$80,000
(including) Solicitation of Members	
Executive Committee Meetings	
Solicitation of Donations	
Develop and maintain partnerships	
Organization Coordination	
Support regional community initiatives	
Advocacy	
Grant Writing	
Organizational Memberships	\$10,000
(examples) STEM Education Coalition	
Triangle Coalition	
TIES	
ND STEM Network Electronic Communications	\$15,000
(examples) Web Design/Hosting	
Experts Database	
Wordpress Blog	
State & National Conference /Exhibits	\$30,000
(examples) STEM Forum and Expo	
National NSTA Conference	
Annual NCSM Conference	
National AMTE Conference	
Exhibitor fees	
ND STEM Network Summit	\$25,000
(including) Speaker Travel & Fees	
Meals & Breaks	
Rent	
Management Team Meetings	\$30,000
(including) Mileage	
Meals	
Hotel	
Conference Call Fees	
Printed Materials	\$10,000
Annual Total	\$200,000
Biennium Total	\$ 400,000

ND STEM NETWORK

ESTIMATE ANNUAL BUDGET AND JUSTIFICATION

	DESCRIPTION	QTY	AVE.	COST
1	Statewide Network Management	1	\$ 80,000.00	\$ 80,000.00
2	Organizational Memberships	5	\$ 2,000.00	\$ 10,000.00
3	ND STEM Network Electronic Communication	1	\$ 15,000.00	\$ 15,000.00
4	State & National Conferences/Exhibits	15	\$ 2,000.00	\$ 30,000.00
5	ND STEM Network Summit	1	\$ 25,000.00	\$ 25,000.00
7	Management Team Meetings	12	\$ 2,500.00	\$ 30,000.00
8	Printed Materials	1	\$ 10,000.00	\$ 10,000.00
Subtotal				\$ 200,000.00
Total				\$ 200,000.00

STATEWIDE NETWORK MANAGEMENT

The manager of the ND STEM Network provides leadership and support to regional volunteer coordinators to a unique initiative of committed partners from pre-K12 education, higher education, business, not-for-profit and government that champions policies, programs, research, and best practices that will rapidly scale STEM education innovation and support educators in preparing ND students for success in post secondary education and/or work. Ensuring the four regional and native american hubs are established, maintained, and successful will require regular meetings, site visits, conversations with a diverse audience, representation at local, regional, and national conferences allowing advocacy, and requiring grant writing particularly for the seed funding for ideas, and pilot projects; ensuring industry partnership and funding is important.

ORGANIZATIONAL MEMBERSHIPS

Membership to organizations which include Education Coalition, the Triangle Coalition, and TIES will connect the ND Network to that Nationally while enhancing function and credibility.

ND STEM NETWORK ELECTRONIC COMMUNICATION

Communications are initiated, cultivated, and sustained with the use of contemporary web-based systems which include WordPress blogs, newsletters, calendaring, conferencing, including an experts database and searchable document archive system.

STATE AND NATIONAL CONFERENCES/EXHIBITS

STEM Forum and Expo, National NSTA, AMTE, and Annual NCSM are among the conferences that will provide a channel to evidence our work, solicit membership, disseminate results, learn from our partners, manager and coordinators attending, included are the costs associated with exhibits that testify to our effort while inviting partnership.

ND STEM NETWORK SUMMIT

Partners throughout the state and region will gather once per year at a Network Summit for showcasing, planning and building a robust and efficient resource. Coordinator and speaker travel, stipends, fees, meals, breaks, and facility costs are included with the expectation that industry partners will provide matching monies.

MANAGEMENT TEAM MEETINGS

The manager and regional coordinators will meet monthly to ensure progress towards sustainability and network goals, eight meetings in person, four via telecommunication in a given year. Meeting and travel costs are included.

PRINTED MATERIALS

Quarterly reporting, newsletters, brochures, invitations, assessment instruments, are among the printed materials.

This document can be referenced as <http://bit.ly/11SqPjI> and accompanies <http://bit.ly/10hOI7F>



Senate Education Committee
Testimony on HB 1228
March 13, 2013

#2

Mr. Chairman and members of the committee, my name is Wayne Kutzer, Director of the Department of Career and Technical Education. We support HB 1228. Our role in this effort is to provide a vehicle for the funding and grant the funds to the ND STEM Network through Valley City State University who will act as a fiscal agent.

CTE has been involved with the STEM movement from the beginning, many of the core principles that surround career and technical education are also found in the STEM movement. It is because of that connection, we see the need to have a strong STEM network in the state that brings partners from all sectors together to advance STEM in our state. I believe that the ND STEM Network is just that entity to help provide continuity and direction to STEM activities in this state.

\$400,000 in funding for the ND STEM Network has also been placed in CTE's budget in SB2019 through an amendment in the Senate. As these two bills move through the legislation they will need to be reconciled.

I would be glad to answer any questions that you may have.

34

TESTIMONY ON HB 1228
Senate Education Committee
3/13/2013

By: Matt Strinden, Director of Teacher & School Effectiveness
701-328-2755
Department of Public Instruction

Mr. Chairman and Members of the Committee:

My name is Matt Strinden and I am the Director of Teacher & School Effectiveness for the Department of Public Instruction. I am here to speak in favor of HB 1228 and STEM education.

In today's competitive job market, it is our responsibility to provide a high quality education for our North Dakota students and a focused effort on Science, Technology, Engineering and Mathematics plays an important role in that endeavor. The increased development of North Dakota's STEM initiative will assist our educators in providing students with the highly desired skills and abilities to be competitive locally, within the United States and abroad.

This effort will help schools make the vital connections to business and industry, which are critical to the success of STEM programs. These connections will also provide our students "real world" opportunities in STEM fields and afford them the ability to utilize their skills and apply them in realistic settings. In addition to these increased student internship opportunities, this bill will aide educators in gaining access to the resources and connections of our business and industry

partners to provide additional authentic learning experiences for our students within the classroom. For these reasons, the Department of Public Instruction is excited about the possibilities that the STEM initiative has to change the way that we approach the education of our students.

It is widely known that the future of our state and country's economic competitiveness depends greatly on how well our students perform in STEM fields. The Commerce Department recently released a study that highlights the fact that growth in STEM jobs grew three times faster over the past 10 years than non-STEM jobs. In short, if we are to keep up with our global competitors, we must step up our investments in STEM education. Our department staff looks forward to working with the STEM initiative in North Dakota and partnering our efforts to provide a world-class, high quality education to prepare our students to become tomorrow's leaders and innovators.

I would like to thank you for your leadership on this critical issue and will respond to any questions that you might have at this time.

#5

ND STEM Network Testimony

Bill 1228

Paul Keidel – Missouri River Education Cooperative/Bismarck Public Schools/ND STEM Network

- Increase the number of STEM graduates
- Develop more cooperation among stakeholders
- Create more students wanting to and having the ability to learn by STEM integration
- Increase high school graduation rates
- Increase the STEM workforce needed in North Dakota
- Invest in economic development so the newly trained workforce can stay in their communities
- Have North Dakota rank first in K-20 education
- Education and visioning for communities to develop the demand for STEM education
- The diversity inherent to North Dakota is embraced and STEM is truly for all
- Expand the 21st century skill sets of North Dakota's Citizens
- Make use of a revolutionary systems approach to STEM education
- Connect PK-12 to workforce and the larger STEM community
- STEM becomes the responsibility of all North Dakota citizens

The ND STEM Network aims to link and increase cooperation among all North Dakota stakeholders to provide opportunities and encourage all students to be creative and innovative gaining 21st century skills through increased engagement in project-based learning and problem solving, driven by the science, technology, engineering and math (STEM) disciplines. These skills will allow more North Dakotans to graduate, gain additional skills and become part of a productive and competitive workforce in North Dakota. We believe this approach to education needs to become our vision for North Dakota students and is the responsibility, not only of educational institutions at all levels, but is the responsibility of all North Dakota citizens, businesses and communities.

#6

Good morning Mr. Chairman and committee members, for the record, I am Dr. David DeMuth, Jr. and I serve as Executive Director of the Great Plains STEM Education Center at Valley City State University.

STEM is Science Technology Engineering Mathematics experienced simultaneously, not separately. It's as though a biology, an electronics, a dynamics, and a calculus class were all taught together as a project-based, collaborative, problem solving capstone experience.

This is STEM in the purest form, and is proven by educational research as an effective standards-based strategy at developing the 21st Century skills our employers are begging for, skills which assure North Dakota businesses sustain economic vitality in a global marketplace.

A network of K-12, college, university, business and industry partners, alongside government agencies to promote effective learning models and support integrated learning strategies, is among the most notable goals of the ND STEM Network, our students the most important recipient.

Networks are best when they do work, innovate solutions, are there to help others to do their work better. In establishing a network we communicate that work to others, some like minded, some skeptical, minimizing duplication, and maximizing scarce resources.

A network provides a single touch point for stakeholders who seek to participate, particularly if entering from the outside, intent on contributing to increasing the number of students graduating in the STEM disciplines.

A stand-alone network as proposed by HB 1228 is genuine and inclusive, servicing all its constituents, be it K-12, its tribal partners, universities, colleges, commerce, economic development, business and industry.

With this legislation we mimic established models in Ohio and North Carolina, having personally visited both recently. Other notable networks include Iowa, Tennessee, Texas, and California. I know that a ND-based network can provide uniquely to the consortium of state networks known as STEMx who are focused on the the solutions of the dilemma of filling 9.2 million STEM jobs predicted for 2020.

As testified previously, Valley City State University has made critical investments over the past three years to establish the ND STEM Network and are eager to participate in the version 1.0 upgrade to version 2.0.

If STEM is truly valued, it has to be tended, someone has to shepherd this effort to move the STEM agenda forward, to be a mover and a shaker for driving education reform and for seeking sustaining business partners.

Shepherding STEM across all of the 71,000 square miles of ND for a two year period was conservatively budgeted for in our initial \$400,000 biennium request. Put simply there are real costs associated with networking and if funded fully, the return on your investment will be extraordinary.

An investment from you will demonstrate real value and will seed our ability to establish notable public-private partnerships that will assist with sustaining this effort.

Companies such as John Deere, Bobcat, Sanford Health alongside the petroleum and coal industries are communicating their support for a ND STEM Network, and regard the passage of HB 1228 as a stand-alone Bill as the litmus paper that will signal the progress needed to ensure their workforce needs in North Dakota are met.

This network understands without bias the entire workforce pipeline, starting with pre-school, continuing through elementary, middle, and high schools, and graduating more in the STEM disciplines and with 21st Century Skills who have an attitude towards a lifetime of learning, an agility for change, who can arrive in the workforce and/or move through higher education with nimble ease.

The North Dakota STEM Network as proposed initially in HB 1228 provides the best possible education for all of North Dakota's children. The time to fully support our North Dakota students is now.

Thank you for the opportunity to support this important legislation.

Spoken Testimony of David DeMuth, Jr., March 18, 2013

3-20-13
HB 1228

#1

Mr. Chairman and committee members, good morning! For the record, I am Dr. David DeMuth, Jr. and I serve as Executive Director of the Great Plains STEM Education Center at Valley City State University. In this testimony I provide strong support for HB 1228.

Teaching Science Technology Engineering Mathematics simultaneously is a learning methodology that is new to many of our in-service teachers. Research verifies that this active strategy is effective at developing the 21st Century Skilled students that our employers are begging for.

Consider the subject area of Astronomy, where in 8th grade our science teachers are obligated to teach to address standards related to our moon our sun, and solar system.

The science of neutrino production on the sun, the technology of earth or satellite based detectors that measure those high energy particles streaming by the trillions as a result of hydrogen burning, the engineering of the Hubble Space Telescope or of the Space Station, and the mathematics associated landing with precision on the surface of Mars.

Melding the S, the T, the E, and the M into a focused hands-on highly engaging learning experiences is STEM in the purest form, and in time teaching this way will be the standard operating procedure for our K-12 teachers. Doing so is not easy, the the rewards are numerous.

Inspiring and retaining interest and graduating more in the STEM disciplines to meet work-force demands is a principal objective, particularly as our nation aims to fill 9.2 million STEM related jobs by 2020.

A network of K-12, college, university, business and industry partners, alongside government agencies to promote effective learning models and support integrated learning strategies, is among the most notable goals of the ND STEM Network, our students the most important recipient.

Networks are best when they do work, innovate solutions, are there to help others to do their work better. In establishing a network we communicate that work to others, some like minded, some skeptical, minimizing duplication, maximizing scarce resources.

A state-wide STEM network must be tended, someone has to shepherd this effort to move the STEM agenda forward, to be a mover and a shaker for driving education reform and for seeking sustaining business partners.

Shepherding STEM across all of the 71,000 square miles of ND for a two year period was conservatively budgeted for in our initial \$400,000 biennium request. Put simply there are real costs associated with networking and if funded fully, the return on your investment will be extraordinary.

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Thank you for the opportunity to support this important legislation.

#2

Senate Appropriations Committee
Testimony on HB 1228
March 20, 2013

Mr. Chairman and members of the committee, my name is Wayne Kutzer, Director of the Department of Career and Technical Education. We support HB 1228. Our role in this effort is to provide a vehicle for the funding and grant the funds to the ND STEM Network through Valley City State University who will act as a fiscal agent.

CTE has been involved with the STEM movement from the beginning, many of the core principles that surround career and technical education are also found in the STEM movement. It is because of that connection, we see the need to have a strong STEM network in the state that brings partners from all sectors together to advance STEM in our state. I believe that the ND STEM Network is just that entity to help provide continuity and direction to STEM activities in this state.

As you are aware, \$400,000 in funding for the ND STEM Network has also been placed in CTE's budget in SB2019. At the end I would hope that we have the \$160,000 that is in this bill and be able to keep \$240,000 of the \$400,000 in SB2019.

I would be glad to answer any questions that you may have.