

Approved at the 4/6/2018 meeting
BOARD OF TRUSTEES OF THE COLORADO SCHOOL OF MINES
MINUTES OF THE BOARD MEETING
Friday, February 9, 2018
COLORADO SCHOOL OF MINES
1500 Illinois Street, Coors Boardroom

I. Trustee Breakfast – 8:00 a.m., Ballroom C, Student Center

Executive Session

8:00 a.m. Motion to move into executive session by Trustee Haddon; motioned seconded by Trustee Truly. Motion approved 6-0.

The purpose of the Executive Session was to receive legal advice pursuant to §24-6-402 (3)(a)(II), C.R.S. and discuss personnel matters per §24-6-402(3)(b)(I) C.R.S.

9:15 a.m. Motion to adjourn executive session and move into regular session by Trustee; seconded by Trustee. Motion approved 6-0.

II. Special Presentation

9:25 a.m., Ballroom A, Student Center

Mines Park rate increase Dr. Dan Fox and Ms. Becca Flintoft presented an overview of the proposed housing rates for fiscal year 2019 . They reviewed the timeline of notifications of the proposed rate increases and the annual process for proposed rate changes. They provided a breakdown of the housing system costs and reviewed a recent market analysis that provided comparisons in the Golden and surrounding area. Chairman Jordan opened the floor for discussion. Multiple students voiced their concerns over the proposed 25% rate increase for Mines Park apartments and asked for solutions to address those concerns. There was discussion regarding removing some of the newly added amenities, grandfathering in current students with smaller increases over multiple years, and allowing families to rent smaller units. There was also discussion regarding the comparable properties and amenities offered in the Golden community. It was specifically noted that most of the amenities provided through the Mines Park lease are typically offered at an additional cost incurred at other apartment complexes. Several International students noted that visa restrictions prevent them from obtaining outside employment and their spouses are not allowed to work in the United States at all, thus applying a greater financial burden on their families. Students asked the Board to consider their hardships when deciding upon the increase at their May meeting. Students requested that when an increase is being considered in the future they be involved earlier in the process. Chairman Jordan and Trustee Swift thanked everyone for their input.

10:10 a.m. The Board moved to Guggenheim to begin the regular meeting.

III. Regular Meeting

10:20 a.m. Trustee Jordan called the regular meeting to order.

Trustees present: Chairman Jordan, Trustee's Haddon, McNeil, Truly, Starzer, Salazar, Swift and Hogue.

Mines executives and directors were also present including: President Johnson, EVP Volpi, Interim Provost Boyd, VP Fox, VP Han, VPGC Walker, VPRTT Tompkins, Dean's Moore, Kaufman and Graves, Dr. Harrison and Dr. Maxwell.

a. Consent Agenda

1. The minutes from the December 8, 2017 meeting were submitted for approval. Trustee Haddon motioned to approve; seconded by Trustee McNeil. Motion approved 6-0.
2. The Debt Policy Amendment. Chairman Jordan noted that it was determined in the Finance and Audit committee meeting to table for the time being Board consideration and approval of a debt policy .

b. Reports and Updates

Board Committee Reports Trustee Haddon reported that the Finance and Audit Committee (FAC) and the Investment Advisory Committee (IAC) met on February 1, 2018. The committee reviewed financial statements, and the current internal audits. They received an update on endowed fund performance noting it performed well last year. The committee approved FY18 audits and looked at the outstanding audits that have fallen behind, noting that international management issues are outstanding and being addressed. Chairman Jordan asked that at the next regular meeting there be enough time included for discussion of debt capacity, no less than an hour.

President's Report President Johnson introduced and welcomed Dr. Stefanie Tompkins, the new Vice President for Research and Technology Transfer who starts employment at Mines on February 15, 2018.

Financial Report Ms. Volpi briefly reviewed the financial report. She noted that the operating funds for second quarter as of December 31 were at \$103 million with the end of year projection at \$200 million. Ms. Volpi briefly reviewed the increase in revenues primarily due to the new consulting agreement with Nazerbayev University and rent from Jackson Street. She noted that the second quarter increase in debt service was due to project approval from last quarter.

Faculty Senate Report Dr. Maxwell provided an overview of current Faculty Senate activity. They are focusing on courses and new degree programs that will be put before the Board today. Dr. Reed noted that the Faculty Senate is hiring an administrative staff person to help run undergrad and graduate councils, as well as the online course system. He believes adding this position will assist the Faculty Senate with making processes work more efficiently.

c. Presentation and Discussion

BOT Conflict of Interest Policy review Ms. Walker provided information on the Board's Conflict of Interest policy, noting that the policy requires the Board to review and acknowledge this policy annually . Ms. Walker highlighted the section on the Trustees' duty of care. There was discussion about whether or not the Board members should sign a written acknowledgment of their review and understanding of this policy annually, or if noting that they have reviewed this in the meeting minutes is sufficient. Ms. Walker noted that the commitment in the policy is to discuss this policy in the Board's first meeting every calendar year, but that process can be amended or supplemented if the Board feels it is appropriate to require Trustees to sign written acknowledgments of their review of policy requirements. The Trustees expressed interest in the acknowledgement form. Ms. Walker will draft this and provide it to the Board for consideration at a future meeting.

Mines/USGS Expanded Partnership Ms. Volpi provided an update of Mines and the USGS facility opportunity. She provided highlights regarding Mines' unique position to make significant contributions to, and be recognized as, a global leader in subsurface exploration, resource valuation and extraction. Ms. Volpi provided a review of the building concept draft, which reflects a large co-located facility that will provide labs, offices, classrooms and a showcase for public access, with a programs focus. Ms. Volpi reviewed process, costs and sources and recommended that now is the time to begin planning with the period of the development process of three to four months at a cost of approximately \$200,000. Funding for this development process will be paid jointly by Mines

and USGS (via a COOP agreement USGS where USGS labs and staff begin to move to Mines this year. She provided the projected building costs of \$80-90 million and noted proposed funding sources. There was discussion of the transformational opportunities for Mines and funding sources could include naming opportunities, support from students and state support. Ms. Volpi reviewed the priorities moving forward, the critical priority being to obtain Federal commitment to gain legislative authority for USGS to enter into a long-term lease. The second priority is to secure up front funding commitment of \$8-10 million for architectural and engineering design. Ms. Volpi noted there are multiple steps in the process and that timing may need to be sooner than anticipated noting the goal is to approach Senator Gardner to get the bill in place in the current Federal session. She provided a review of the proposed location and early rendering. There was discussion regarding the opportunities and the risks of this partnership. Mines will continue with due diligence and moving the initiative forward. The Board agreed that management can proceed with the planning efforts and the Board and management will engage in a strategy for the legislative efforts.

Cybersecurity Ms. Volpi introduced Mr. Mike Erickson, CIO, to provide a brief overview on cybersecurity at Mines. He provided information on targeted and non-targeted attacks at Mines noting that Mines has intellectual property and data that is attractive to hackers. Mr. Erickson reviewed the comprehensive approach to cybersecurity noting that Mines follows ISO standards. He provided information on specific efforts including individual awareness, continual monitoring, incident management and data preservation. He reviewed challenges in the shifting and evolving landscape. He reviewed Mines' focus on continual improvements in the future including increasing resources, 2-factor authentication, DoE reporting and NIST compliance. There was a brief discussion regarding personnel breaches and the related reporting systems noting that for significant data breaches, it is important to report to the governing Board. There was discussion regarding mandatory training for Mines users and the importance to reinforce online vigilance with increased awareness. Mr. Erickson informed the Board that Mines engages a professional service to find weak spots in the systems. There was further discussion regarding keeping the Mines cyber team up to speed with continuing challenges and growth of technology.

d. Action Items

New degree approvals Dr. Boyd provided the background on the three new degree programs for which he is seeking BoT approval: Advanced Manufacturing, Quantitative Biosciences and Engineering, and Mining Engineering and Management. All are graduate programs. He introduced the following faculty members to provide the BoT an overview of each of the programs.

Dr. Aaron Stebner (professor of Mechanical Engineering) presented a summary of the Advanced Manufacturing (certificate and MS non-thesis) program noting that the Advanced Manufacturing workforce demand in Colorado is high, creating a demand for this program. Dr. Stebner provided information on the six Mines' departments that would participate in the program, which would leverage Mines research and development expertise across the campus. He overviewed two signature tracks within the program: data-driven materials manufacturing and additive manufacturing of solid materials. He noted Mines is working with NREL to roll out additional tracks. Dr. Stebner reviewed the degree requirements for graduate, masters and undergraduate components of the program.

Dr. Judith Klein (CASE) presented an overview of the Quantitative Bioscience and Engineering (MS non-theses and MS thesis, PhD) program. She reviewed job growth in the biosciences, student demand for programs, intellectual capacity at Mines, and potential for growth of the program. Dr. Klein noted that other local universities already have a strong foothold in the biosciences so Mines needs a program that is distinctively Mines yet is still relevant in addressing needs across the State and nationally. She reviewed the vision for the new program as providing rigorous training at the interface between biology and the mathematical, computational, and engineering sciences that are the hallmark of the Mines education. Dr. Klein provided information on the program core curriculum. There was a brief discussion on enrollment and space needs.

Dr. Priscilla Nelson (Department Head, Mining Engineering) provided an overview of the Mining Engineering and Management (professional Masters) program. She provided information on admissions requirements and noted that the program would be delivered in a fully online mode. Dr. Nelson provided an overview of the industry needs addressed, learning outcomes covered, and courses delivered in the program. She provided information on course content, which includes mining engineering courses, mine services courses, and mining business courses, and management courses. There was a brief discussion regarding marketing the course.

Motion to approve the three new degree programs by Trustee Haddon; seconded by Trustee Truly. Approved 6-0.

BE IT RESOLVED that the Board of Trustees of the Colorado School of Mines approve the following graduate degree program actions:

Creation of a new graduate degree program (Certificate, and Non-thesis MS) with the title "Advanced Manufacturing"

Creation of a new graduate degree program (Non-thesis MS, Thesis MS, and PhD) with the title "Quantitative Biosciences and Engineering"

Creation of a new graduate degree program (Professional Masters) with the title "Mining Engineering and Management"

Housing Opportunity Ms. Volpi provided information on a student housing opportunity in Golden and provided a review of the Mines@150 housing master plan. She reviewed the property Mines is exploring acquiring. Mines is presently working with a developer to negotiate a transaction through which the developer would design and build a Mines residence hall at 1750 Jackson Street. She reviewed the anticipated structure of the transaction, noting that it would require Mines to purchase the undeveloped property, and enter into agreements with the developer to design, build and lease back to Mines under a long-term lease the residence hall. Mines has signed a letter of intent and the specific terms of the transaction are being negotiated. The letter of intent expires March 31, with the expectation that a formal agreement would be finalized and executed by the parties by that time. Ms. Volpi reviewed pros and cons of entering into this type of venture, noting this is the first housing development agreement of this type that Mines has entered into.. Ms. Volpi provided a comparison between Mines' typical approach to funding and building housing versus the developer lease/purchase/ financing arrangement, and reviewed different options for structuring the proposed transaction. Ms. Volpi went over possible risks and potential concerns of the City of Golden or nearby residents. She noted that Mines is very sensitive to the impact on Golden. She reviewed the location and the rendering of the new building. There was further discussion regarding what neighbors are concerned about followed by a brief discussion regarding parking and rates. Ms. Volpi noted that after 30 years the property reverts to Mines. Trustee Haddon asked for a list of other properties by this developer. There was discussion regarding locking in price and payment, means for protecting Mines in the event of developer default, and whether Mines would be a party to the developer's financing agreement. The Board noted they want Mines to continue to work cooperatively with the City of Golden community to address any concerns.

Motion to approve by Trustee McNeil; seconded by Trustee Truly. Approved 6-0.

BE IT RESOLVED that the Board of Trustees approves that authority be given to the university administration to proceed with the planning for and negotiation of the appropriate agreements and documents needed to acquire property for and construct a Mines-operated residence hall at 1750 Jackson Street, Golden, CO.

Be it further resolved that the university administration must seek the approval of the Board of Trustees of the terms of any appropriate and necessary agreements successfully negotiated with the property owner and developer, Confluence Companies, LLC, prior to execution of such agreements. It is anticipated that the following agreements will be required to complete this transaction:

- 1) a purchase and sale agreement pursuant through which Mines would acquire the land from Confluence;
- 2) a ground lease, pursuant to which Mines would lease the land to Confluence for the sole purpose of Confluence's constructing the residence hall and leasing it back to Mines;
- 3) a design development agreement; and
- 4) a sublease, pursuant to which Confluence would sublease the property and completed residence hall to Mines.

NGL Lease Agreement Ms. Volpi introduced Dr. Tzahi Cath to provide an overview of the proposed NGL sublease agreement. Dr. Cath provided information on NGL Energy Partners and Mines' tour of the potential site for a water research facility. He reviewed why NGL decided to terminate their operation and make Mines an offer to take over the facility lease and turn it into a regional/national industrial water research center. Dr. Cath reviewed Mines' motivation to enter into this agreement, noting the plan is to establish a center for development, collaboration, water treatment technologies development, and to provide a central location for the needed lab. He provided an overview of the location of the facility near I-70 and Quebec. He provided images of the inside the facility showing labs, a high bay facility with equipment, offices, conference rooms and noted that a lot of research equipment will be left at the facility for Mines' use. Dr. Cath reviewed the outside of the facility as well, noting it has plenty of space for outdoor research. He provided an overview of the benefits to Mines, including that this is a turnkey facility, a place to establish better collaboration with NREL and other universities and a regional center for research. Dr. Cath reviewed the potential support for the facility that includes a \$1.5 million investment from Zoma Foundation and the Walton Family Foundation already received. He noted that there are other interested parties who may provide support. There was a brief discussion regarding why NGL walked away from the site and potential liability at the site resulting from possible environmental contamination. Trustee Haddon noted that Mines should to do some soil sampling and background environmental analysis. Ms. Volpi informed the Board Mines is conducting a Phase 1 study of the leased site, and that Mines would be sub-leasing through 2020 if the Board approves Mines entering into the lease.

Motion to approve by McNeil; seconded by Trustee Truly. Approved 6-0.

BE IT RESOLVED that the Board of Trustees of the Colorado School of Mines approves of the School entering into the lease with NGL-EP, and authorizes the President or his appropriate delegate to execute the sublease agreement with NGL-EP pursuant to the terms outlined herein and deemed appropriate by management.

e. Regular Written Reports

Undergraduate Admissions No update.

Graduate Admissions No update.

Environmental Health and Safety report No update.

Research Activities and Tech Transfer report Note this report returns to usual verbal report in future meetings.

CSM Foundation report Mr. Winkelbauer provided a brief update on #idigMines fundraising effort noting its success.

12:20 p.m. Chairman Jorden moved the Board and attendees into the retreat in Ballrooms AB.

III. Retreat: Mines@150 and the University Design Process

Ballroom AB, Student Center

Opening presentation and context President Johnson provided an overview of the Mines@150 retreat. He provided the context for Mines@150 challenges, mission and aspirational goals. He noted Mines is in an era of dynamic change. It is that change plus Mines aspirations that has shaped the Mines@15 vision. Dr. Johnson provided questions to guide the discussion for the retreat.

Dr. Boyd provided an overview of the university design initiative that included metric-based budget model, promotion and tenure expectations, productivity guidelines, and a university design exercise. He provided an overview of the context of the design process by illustrating various aspects of the business models employed by departments, departmental areas of distinction, and institutional and departmental metrics and aspirations driving the process. Dr. Boyd then invited Chairman Jorden to discuss what is important to the Board.

Setting the stage Chairman Tom Jorden provided an overview of the expectations of the Board. He noted that top schools have top faculty, are prolific in research, and inspirational in teaching. Top schools have top students and it is important for Mines to generate a culture that attracts top faculty and students, and is as productive as possible. Mr. Jorden observed that Mines' current business mode is eroding due to public funding falling, competition for students increasing, and some institutions beginning to fail. Mines has to face these challenges innovatively. Chairman Jorden noted that to maintain, and expand the student body will involve becoming a residential campus, which is challenging but also an opportunity. He noted that to make progress sometimes we have to be uncomfortable and that the Mines leadership and community needs to work together and remake its culture. Mr. Jorden stated it is possible and important to honor Mines traditions while moving forward.

Panel 1: Innovations in Undergraduate Education presented by Dr. John Bradford and Dr. Tracy Camp. Discussion panel included Dr. Bradford, Dr. Camp, Dr. John Berger, Dr. Rod Eggert and Dr. Atef Elsherbeni. Dr. Bradford provided information on the new geophysics curriculum. He discussed the defining issues for the 21st century: food, water, energy and climate. He briefly reviewed the Geophysics reimagine committee, presented trends in technology in future of geophysics, and described how the geophysics undergraduate program is changing to address these. Q&A discussion followed.

Dr. Tracy Camp provided an overview of Computer Science, collaborative degree programs being developed, and her efforts at improving STEM pipeline. Dr. Camp provided information on additional pathways through the Computer Science curriculum that have been developed to increase the impact of computer science education across campus. Dr. Camp provided an overview of a program she is leading to improve STEM pipeline. Dr. Rod Eggert provided an overview of EB involvement in innovative activity. Q&A discussion followed.

Panel 2: Innovating the Student Experience presented by Ms. Becca Flinthoft, Dr. Toni Lefton and Ms. Carol Smith. Discussion panel included Dr. Amery, Ms. Flinthoft, Dr. Lefton, Ms. Smith and Dr. Kevin Moore. Ms. Flinthoft provided an overview of the CLASS initiative and reviewed the vision of the program and provided the core competencies for the program.. Q&A discussion followed.

Dr. Toni Lefton provided overview of the STEAM initiative, re-envisioning the Library as a hub for University collaborations. She provided information on the relation between art and science, citing multiple historical examples of the power of combining both in a more holistic fashion. Ms. Smith finished with a review of the value of a library as an ideal hub for the STEAM aspiration articulated by Dr. Lefton. She described the Library as the campus nexus and a recognized gathering place for faculty and students. Ms. Smith reviewed the current library noting it is outdated and no longer represents the research or spirit of the communities it serves. Q&A discussion followed.

Panel 3: Innovation in Graduate Education presented by Dr. Uwe Greife. Discussion panel included Dr. Greg Fasshauer, Dr. Priscilla Nelson, Dr. Jeff Squier, Dr. Uwe Griefe, Mr. SM Spiegel and Dr. Jennifer Wilcox. ***Note: the Online Presentation will be presented at the next regular Board meeting.***

Dr. Greife provided an overview of the Physics graduate program. He reviewed the MS level Combined Program tracks and a proposed Applied Optics coursework. Dr. Greife provided an overview of the Ph.D. in Applied Physics noting the possibility of changing this to a more general Physics degree. He provided an overview of first steps. Q&A discussion followed.

Panel 4: Advancing Cross-Disciplinary and Innovative Research Initiatives Dr. Tom Gennett provided an overview of advanced cross-disciplinary and innovative research initiatives that leverage off of external partnerships. He reviewed why cross-disciplinary approaches are important and provided an overview of initiatives being led out of Chemistry. He reviewed the strategic design of the Chemistry department and large multidisciplinary programs that are now thriving in the department. Dr. Gennett provided information on planned activities for these programs and future actions. Q&A discussions followed.

Dr. Terri Hogue (Department Head, Civil and Environmental Engineering) provided an overview of, and vision for, the Civil and Environmental Engineering (CEE) department. She provided information on the key sectors served by the department and the connections and the various research themes in the department. Dr. Hogue reviewed Integrated Decision Support Tools (i-DST) for grey and green infrastructure planning noting the \$2.6 million EPA grant. She reviewed Underground Transportation Center for Underground Transportation Infrastructure (UTC and UTI) program. Dr. Hogue provided an overview of sustainable urban infrastructure and, reviewed how CEE is connecting across departments throughout Mines. Q&A discussions followed. The Board asked that Dr. Hogue consider changing word "urban" to "community" to be more inclusive.

Board observations and next steps _____ President Johnson concluded the presentations and invited the Trustees to discuss their observations. Trustee Haddon commented that it had been a fascinating review. He suggested that Mines become more entrepreneurial in pursuing some of the ideas presented. Talk more, incorporate empathy, and maintain an open mind. Trustee Salazar added that it was encouraging to hear the thought process and thoughtfulness of the presentations. He noted now is the time to step on the accelerator and move forward with the ideas presented. Trustee McNeil observed that Mines is special and everyone is doing a great job and have great ideas. He would like more discussion about entrepreneurship, and possibly a way to integrate an MBA program with business courses offered online. Trustee Starzer thanked everyone for their time, study, and preparation, and felt the presentations were very insightful. She noted that she was encouraged by amount of interdisciplinary work. Trustee Swift thanked everyone and noted that from a student perspective this process allowed him to see more collaboration and interactivity between departments. He asked that everyone continue to communicate. Trustee Truly thanked everyone and stated that he was impressed by the leadership of the university. He noted that collectively this group touches so many people every day. He would like Mines to be one of the universities that participates in the NAE Grand Challenge scholars programs and would like to hear more about that in the future.

5:00 p.m. Motion to adjourn and move into the retreat agenda by Trustee Haddon; seconded by Trustee McNeil.
Approved 6-0

There being no further business, the regular meeting and retreat adjourned.



Anne Stark Walker, Secretary