ROCKY MOUNTAIN VIEWS

Rocky Mountain Association of Higher Education Facilities Officers

Spring 2001

inside...

State/Providence Report Editor's Corner Say Hello to Maintenance Staffing . . .

YOU'VE GOT THEM! WE WANT THEM!



Here is a reminder to send your contributions for the RMA 2001 Educational Conference's booklet

"SALSA for the FACILITY MANAGER'S SOUL"

DEADLINE: June 30, 2001. But don't delay! We all know how deadlines can creep up on us.

EMAIL: dbaker@pimacc.pima.edu or RMA2001@pimacc.pima.edu

FAX: (520) 206-2736 or (520) 206-4536 Attn: Donna Baker

MAIL: Donna Baker Pima Community College 6680 S. Country Club Rd, Tucson, AZ 85709-1700

Whether you have been misquoted, misunderstood, appreciated, used, or abused. We are asking you, your spouse, and co-workers to send us short stories (no more than three pages or approximately 1500 words), one liners, and anecdotes about working within Facilities. We will also accept favorite quotations, cartoons, and poems.

Please include your name, college/company, phone, email, address, city/state/zip. If the work is not yours, be sure to credit the individuals whose work you are sending as well as your information.

AGREEMENT: By sending in a contribution, I agree to allow the RMA2001 Educational Conference to print my contribution for the purpose of free distribution within the booklet "Salsa for the Facilities Manager's Soul". I understand there will be no payment or royalties for my contribution. The RMA2001 Educational Conference committee is the final authority on items selected for print.

President's Message



As we get caught up in the problems and concerns of our work, sometimes we take ourselves too seriously. Several managers, directors, and supervisors at the twilight of their careers were asked what they wished they hadn't done during their professional life. I would like to list a few of their responses.

Craig Bohn

The first thing these people wished they hadn't done was to worry about things they could not change. They realized no matter how much they worried, some things couldn't be changed. The second thing these managers wished they hadn't done was to believe that success was measured by wealth alone. They realized that you never make enough money, and success is measured by how good you feel about yourself. The next thing they wished they hadn't done was carried grudges throughout their careers. They wished they had learned earlier to forgive and forget. They also wished they hadn't gone through their careers with a lack of life's purpose. They knew the direction of the organization, but felt like they didn't know where their life was going. Finally, they wished they had not gone through their careers thinking that people and the organization couldn't get along without them.

If we find that we are taking ourselves too seriously, and we find ourselves doing things that others had wished they hadn't done, then maybe it's time we evaluated ourselves and begin to change. Someone once said, "there is only one corner of the universe that you can be sure of changing, and that is yourself."

As we continue on with our careers, I hope we don't take ourselves too seriously. Our positions and responsibilities can be a challenge, but we are paid for something that most of us really enjoy doing. Hopefully, we are all realizing and enjoying success!



MONTANA REPORT



Bob Lashaway

Well, the Montana legislature has completed its work for another two years, and we are left to deal with the aftermath. After considering more than 50 bills that attempted to deal with the electricity de-regulation issue for Montana consumers, the legislature in its final days declined to make any substantive changes to the exiting deregulation statutes - which may or may not prove detrimental to Montanans in the long run.

Since the general funding eventually provided by the legislature for the Montana University System was considerably below what was requested, we are now beginning the process of trying to balance our seemingly infinite needs with our decidedly finite resources - i.e., we are once again going into budget-cutting mode. And, in anticipation of much higher energy prices in the second year of the biennium, we have been asked to report to the Board of Regents any budget-related efficiencies (with particular emphasis on energy conservation) that we have set in motion over the past decade. As we begin to examine energy costs and consumption, under the microscope for the first time since the Carter years, we have offered the following list of energy-related items to assure the Regents that we in the Facilities arena have not been complacent about energy responsibilities, even if those issues have not been high on *their* particular priority list for the past decade.

- As the responsible steward of MSU's utilities budgets, the Office of Facilities Services (OFS) has implemented over \$2 million worth of energy conservation projects comprised of heating, ventilating and air-conditioning controls modifications, building envelope improvements, lighting retrofits, and central boiler efficiency improvements.
- MSU's Heating Plant also changes from its standard 24-hour/day winter operation schedule to a 2-shift/day (16 hour per day) summer operation from commencement to the beginning of fall semester. This conserves ~\$75k+/year in utility and labor costs at current energy prices and should pay increasing dividends as energy prices escalate in the future.
 - MSU OFS was a leader in the state in the early 1990's, bidding our own interruptible natural gas contract, that resulted in gas costs to MSU of \$1.1 million less than what we would have paid under the regular prevailing gas tariffs paid by other

state agencies for the period. We continue to purchase gas in the de-regulated market, securing the best, minimum-cost scenarios available from the prevailing market.

- In 1991, MSU OFS installed an electric cogeneration turbine unit in the Heating Plant, which annually contributes 4%+ (in dollar value) of the campus' electricity consumption. To date, the cogeneration unit has produced over \$750k in avoided electricity costs in its 10 years of service.
- MSU OFS annually participates in the self-directed Universal Systems Benefit (USB) program, which allows us to self-direct the USB portion of our electric price tariffs, to execute approved energy conservation measures in our facilities. We have aggressively pursued these projects, reclaiming ~\$50k/year in USB rebates. This year's legislature extended this opportunity.
- While MSU's 20-year consumption trends have indicated steady growth in electric usage and demand levels, MSU's gross natural gas consumption in recent years has been lower than it was 20 years ago. Although this comparison is not weather-normalized, the relative use levels still speak positively about conservation efforts in light of the many new facilities that have been constructed during that period (many of which are costly, high-energy-use, high-ventilation-rate science and laboratory type buildings).
- MSU's gross municipal water consumption has also declined during that period, due primarily to much-improved water management practices for irrigation, including the use of untreated, and much less expensive, surface-water sources rather than treated City water.
- As major new facilities have been constructed, MSU has eliminated old, functionally obsolete, inefficient facilities, thereby reducing the net accumulated deferred maintenance liability.
- When MSU replaced its primary electrical distribution system in the 1990's, we tripled the line voltage, which reduced distribution losses and produced commensurate savings.
- Construction of the MSU Utility Tunnel system (approximately 8000 linear feet of tunnel) allows core utility systems to migrate into the protected tunnel environment as existing systems fail, greatly improving system reliability, expansion flexibility and longevity when compared to the previous direct-buried installations.

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I would also like to point out that, while I've used MSU's listing for illustration, most of the other units of the Montana University System have implemented similar tactics to some extent. From our admittedly biased perspective, that's an impressive list of accomplishments, especially when viewed against the backdrop of continually declining resources (both human and financial), and constantly increasing expectations. Now, as we begin the budget-cutting debates, we again find the Facilities budget squarely in the cross hairs of those who would balance the situation by cutting Facilities disproportionately to hold other areas harmless. Looks suspiciously like "same old tactics, different biennium." We'll let you know how it all turns out!

RMV

WYOMING REPORT



Here it is May 3rd. and it is snowing like crazy, not accumulating on the streets or walks but apparently blowing enough to reduce visibility to the extent that all of the roads out of Laramie are currently closed. We do need the moisture and the landscaping crew had just about finished brushing all of the lawns during the spring cleanup.

Frank Fox

The State of Wyoming's economy normally lags the surrounding states by 180 degrees. So after many months of watching our population dwindle while people headed for greener pastures we are currently seeing the proverbial light at the end of the tunnel. This has been due mainly to the increase in activity in the area of mineral extraction as well as the increase in prices of the various commodities, which spurred the increase in activity. The end result is an increase in funding in the areas of Deferred Maintenance approximately \$4.2 million, \$2.9 million for Capital and Maintenance Projects, and \$450,000 Special Projects. So now the challenge is finding the personnel, contractors, etc. to perform and/or oversee this work within the designated time frames.

Jim McGrath of Facilities Engineering was successful in obtaining a Federal Grant to fund a bike path across a portion of the campus. This was \$24,000 from The Transportation Enhancement Activity. This will not only increase access and egress to and from the campus but also beautify an area that was a bit of an eyesore. Good job Jim.

Elsewhere on campus one new parking lot is to be constructed this summer to hopefully alleviate an ongoing complaint about there not being sufficient parking. I'm sure you all have experienced the situation that if the parking spot is not immediately available right next to the building I work in then there is insufficient parking. One fraternity house has been condemned and is to be razed. Remodeling of the Student Union continues to progress. And the Anthropology Department has received approval for a PHD program, thus additional space will be needed by that Department.

And when additional space is made available of course extensive remodeling will follow. Request for Proposals and Qualifications have gone out concerning the possible expansion of the University Jacoby Golf Course to 27 holes and the construction of a Conference Center/Hotel/ Mall complex.



The University of Utah is like a large ant hill working hard to meet our Olympic goals or at least what we perceive as goals. If it were just the Olympics it would probably be a snap but with our normal work loads our jobs become more exciting. With big events comes major construction and utility updates and of course many completions will not be until the opening ceremonies. Talk about deadlines! With the hurried pace I hope we find time to enjoy what we are trying to accomplish.

Over the past four years the state spent just under 2 billion dollars to re-build I-15 which is the major North/South traffic link through Salt Lake. Most of this project will be completed within the next two months and commuting with the new opening has been a breeze. Thinking this would be the norm to get to and from campus I soon found this too good to be true. Commuting to work this morning the sign boards were up announcing that I-80 East/West and I-215 East West through the valley would be under construction. We also have the light rail addition to campus scheduled to be completed the latter part of this year constricting a major access to downtown Salt Lake. I suddenly realized I will not be able to get to campus in a comfortable fashion again until after the Olympics, maybe!

Progress is a difficult concept to measure especially when it involves your own personal comfort and space. Over the past two years we have changed everything, well almost everything to accommodate our changing and growing campus. Getting to campus in 20 minutes is much more pleasant than 45 minutes of stop and go heavy traffic. Parking in front of my building is much more acceptable than the alternative block away having to cross a major road.

With the Olympics and our campus growth everything will have changed but a close look indicates really nothing has changed......growth and change are inevitable. I'm also older!



COLORADO REPORT

By John Bruning

United States Air Force Academy

Set against the back drop of the Rampart Range just north of Colorado Springs, Colorado, the United States Air Force Academy is a unique member institution in the Rocky Mountain Association. A commission of military and civilian academicians convened in 1948 to develop a curriculum for an Air Force Academy. It was determined that these unique academic needs could not be met by expanding other service academies, so the commission recommended that an Air Force Academy be established. On April 1, 1954, President Dwight D. Eisenhower authorized the creation of the academy and after 580 sites in 45 states had been considered, a site north of Colorado Springs, Colorado was selected. Construction began in July 1955 and was completed in August 1958 at a cost of \$142 million.

Today, the United States Air Force Academy (USAFA) has 9 million GSF of facilities located on 19,000 acres of land. With a cadet wing ranging from 4,000 to 4,400 students, this is a huge campus in terms of acreage and square feet/student. The USAFA includes an airfield, golf course, stadium, chapel and family housing, in addition to the academic, residence, athletic and administrative facilities. 176 miles of roadways trace the academy grounds and a pedestal mounted B-52 bomber welcomes visitors and guests at the main entrance.

The USAFA mission is to: Inspire and develop young men and women to become Air Force officers with knowledge, character and discipline; motivated to lead the world's greatest aerospace force in service to the nation. The USAFA was opened to women in 1976 and today women make up about 14% of the cadet wing. The faculty is composed of 450 Air Force officers and 150 civilians who teach an aerospace focused curriculum of basic sciences and engineering. Graduates leave the Academy as Second Lieutenants and serve worldwide.

Colonel Scott Borges is the current Base Civil Engineer in charge of the USAFA facilities. Colonel Borges transferred to the Academy about a year ago from Air Combat Command in Langley, Virginia. The Academy's Base Civil Engineer serves an average of three years and is supported by a full-time staff of 150 military and 350 civilian employees. Tom Mitchell is the Deputy Base Civil Engineer, a civilian, who has assisted six different Base Civil Engineers in his 9 years at the Academy. Tom has found an interesting niche in his facilities management career. A graduate of Michigan Technological University, Mitchell first worked at a Navy base out of college, then found work with the Air Force and held civil service facilities positions in Germany and Alaska before coming to the USAFA.

Along with other military base facilities units, the USAFA is in the process of a privatization study. Borges and

Mitchell assigned 12 full-time staff members to develop a scope of work document that was used to generate an RFP that has been bid on by private contractors and them selves. In essence, they had to bid against the private contractors to keep their jobs. The bids will be evaluated at the end of May and it will be decided whether to keep the operation in-house or contract it out. If contracted out, it will likely eliminate most all of the military staff and the contractor will probably hire many of the existing staff when they take over. If they keep the operation in-house, it's probable that they will be subject to as much as a 30% reduction in overall funding. In either case, major changes are ahead for the USAFA.

Funding for the facilities program at the USAFA comes from the Pentagon (DOD) through Air Force channels. The current maintenance, operation and renewal budget is \$50 million with an additional \$5-6 million spent on utilities. Capital development requests go through the Military Construction Program and the Academy generally realizes one major capital project/year. It appears that this year's request for a \$17 million addition to their Athletic Field House and Gymnasium will be approved for construction. Staff planners and architects take a capital plan up to the schematic design phase and, if approved, the Army Corps of Engineers takes the projects from DD through construction. An interesting shift that many of us would find very uncomfortable on our campuses.

Besides working through such a large bureaucracy, perhaps the most challenging aspect of managing the Academy's facilities is the huge scale of the campus facilities. There is <u>one</u> academic building on the campus, Fairchild Hall. I believe it is the single largest academic building in the United States at 1.2 million GSF! All of the 4,000 to 4,400 cadets live on campus in <u>two</u> dorms. Meals are served in a dining hall that seats all of the cadets at once and the mandatory breakfast and lunch meals are served within <u>20-30</u> minutes. Talk about efficiency!

At 33 years of age, much of the USAFA infrastructure is reaching life cycle. Mitchell has been using the APPA facilities audit process for several years to make the case for increased levels of renewal and replacement funds. So couched within the \$50 million annual budget is about 2.5% of the current replacement value of the facilities that is used to fund deferred maintenance. However, given the enormous size of the buildings and campus, the funding only goes so far. As a visitor, you only see a small percentage of the Academy, as much of it is not open to the public. But as a visiting facilities management professional, I can tell you that it is incredibly well planned, constructed and maintained. As it should be for one of our nation's service academies.

To Colonel Scott Borges, Tom Mitchell and the facilities staff at the USAFA, JOB WELL DONE! Colorado institutions of higher education and the Rocky Mountain Association are proud to be associated with you!

NEW MEXICO REPORT

In it's unending quest to bring it's members the latest information in the science of facility management, APPA helped to sponsor the first <u>Emergent Building Technologies</u> <u>Conference</u> on February 12th and 13th. Since all Plant Managers subscribe to the unwritten but enduring goal of "better, cheaper, faster", I attended the conference in search of new-technology coping skills. This was an act of conspicuous courage for a guy who only recently mastered e-mail. But the Las Vegas conference site was too cool to pass up.

The conference, sponsored jointly by APPA, CSI, and The National Systems Contractors Association, lived up to its billing as a national benchmark for demonstrating the synthesis of telecommunications, computer-based energy management systems and holistic building design. The focus was on the convergence of systems controls technology that is making truly "smart buildings" affordable to build and cheaper to operate. Attendees also learned how emerging technology is affecting the design and construction process. Systems and software are being developed that will allow "real time" decision making about the selection of building materials and components based on life-cycle-cost. This was exciting stuff for plant people who are looking for the tools to increase their influence over the design process.

The highlights of the conference for me were a provocateur session featuring a Technology Futurist, Elliot Masie, a seminar on Optimizing Design Through Life-Cycle-Costing and a very comprehensive presentation on Managing The Intelligent Campus. Here are a few brain teasers that I wrote down, underlined and asterisked:

- 11. You need a Strategic Plan for integrating new building technology.
 - a. AV control systems will proliferate and so will more sophisticated Energy Management Systems.
 - b. Got a plan on how to train your staff to maintain and repair the new gizmos?
 - c. Getting new staff positions established and coordinating new compensation levels may be your greatest management challenge.
- 2. Energy costs will increase even further.
 - a. Your utility division must change it's focus from provider to manager/conserver.
 - b. New Building Designs must pass a watts per square foot review. Got an energy consumption standard in place?
 - c. If you don't have a state-of- the-art Campus Energy Management System in place, start shopping. It's essential.

- 3. Think holistically about building design.
 - a. Hedge your bet. Start thinking about buildings as "vessels of communication and collaboration." Incorporate new pedagogical methods and telecom network technology into building design.
 - b. The new university facility: One-hundred year exterior; ten year interior?

Mark your calendar for next Valentine's Day. Take your spouse or significant other to Las Vegas. Give them the credit card and a casino map. You go to the next Emergent Building Technology Conference. That's where you're sure to hit a jackpot of high-tech facility management info. Thanks to Lander and the APPA staff for sponsoring this conference.

Editor's Corner By Paul Smith

Summer is upon us in Arizona. Our schools will all be finishing the spring semester or quarter soon and then there will be time to catch up on our PM backlog and reduce the deferred maintenance. Unfortunately, this is no longer true. Summers are becoming as busy as the fall, winter and spring of our school year. As facilities professionals, we are being forced to find new ways to maintain our facilities in the wake of extended hours of operation. Now is truly the time for us to think "outside the box." The educational leadership we work for is becoming more demanding and is looking to the facilities professional for new ways to do business that improve the physical, human and financial resources of the institution.

APPA is becoming more and more a resource to help us meet these challenges. As our professional organization APPA is only as good as the membership makes it. APPA and RMA are looking for ideas on how to do business better. This newsletter is one way you can let your fellow professionals in RMA know about your successes, yes, and even your failures. The newsletter needs you to do its job of communicating. Articles are always welcome and can be sent to your state/province correspondent or directly to me. My email address is psmith@pimacc.pima.edu. Word or WordPerfect format is required and I would appreciate it if you would copy my assistant, Esther Federico too. (eleon@pimacc.pima.edu)

RMA Board wishes everyone a safe and prosperous summer.

Say Hello to Maintenance Staffing Guidelines By Dorothy Wright, staff writer

Reprinted with permission from College Planning & Management (April 2001)

The relative unpredictability of maintenance activities has left college and university facilities manager without objective guidelines for maintenance staffing and service scheduling – until this year. The Association of Higher Education Facilities Officers (APPA) will soon publish the results of three years' work by an APPA task force to fill this void: "Maintenance Staffing Guidelines for Educational Facilities."

Similar to APPA's popular Custodial Staffing Guidelines, which were published in 1992 and expanded in 1998, the new guidelines are designed as a tool to assist facility managers and administrators on total staffing and distribution of the trades, says task force co-chair Theodore J. Weidner, Ph.D., a professional engineer and AIA member who is associate vice chancellor of facilities and campus services at the University of Massachusetts, Amherst.

"There is a recognition that companies have preventive maintenance guidelines and recommended service times for a number of mechanical and electrical items, but they admit that they have a lack of information relative to carpentry, structural, masonry and other trades," Weidner explains. "The correlation between annual maintenance and what kind of staffing you need for a campus of a particular mission hasn't existed. We are attempting to fill that void and gathering data from colleges, universities and similar institutions in that effort."

Justifying Expenditures

Weidner says the guidelines are a tool for facility managers not only to identify how many tradespeople are needed to meet the institution's goals for facility maintenance at a desired level of thoroughness and intensity. They also will be able to use it to report to administrators and trustees on the relationship between funded staffing and facility maintenance, and for benchmarking improvements and financial decisions. "Facility officers always have a hard time explaining why it is important to spend money on facilities either for annual maintenance or for deferred maintenance reasons, in part because it takes so long for the results of the expenditure to appear," he says, "even though a 1986 Carnegie Foundation study that said that a majority of students who are selecting a college or university do so based on the appearance of the campus."

It might be compared to the real estate concept of "curb appeal" – the tendency for first impressions to weigh heavily in home-buyer's decisions. Yet, Weidner says, "For 16 years we have been essentially ignoring something the majority of students are making their decisions about."

Underlying Definitions

Underlying the development of the staffing guidelines are working definitions of the categories of maintenance activities that take place on campus by maintenance trades within the annual operating budget:

- preventive maintenance performed on a scheduled basis annually or more frequently;
- corrective maintenance scheduled in advance in response to problems discovered during preventive maintenance, but excluding capital projects;
- reactive maintenance unplanned trouble or service calls;
- emergency maintenance activities that stop or reduce immediate facility damage or safety threats and restore service; and
- nonmaintenance trades activities that do little to maintain or extend facility life, e.g., stage construction for graduation or commencement.
- Capital maintenance is excluded because it typically is performed as a separate effort outside the annual operating budget, Weidner says.

Service: From Showpiece to Crisis Response

Like the custodial guidelines, the maintenance staffing guidelines are supported by a matrix that displays descriptions of facility characteristics maintained at five service levels, from high to low: 1) showpiece facility; 2) comprehensive stewardship; 3) managed care; 4) reactive management; and 5) crisis response.

The 11 facility characteristics, which the task force identified as essential to describing effective facility maintenance services, are customer service and response time, customer satisfaction, preventive vs. corrective maintenance (as percentage), maintenance mix, aesthetics, exterior, lighting, service efficiency, building systems reliability, facility maintenance operating budget as percentage of the institutions's current replacement value (CRV), and campus average facility condition index (FCI).

The last two items merit some explanation. Weidner says facility officers have proposed measuring the facility maintenance operating budget as a percentage of the

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institution's CRV. That is, there is usually a strong relationship between the size of the operating budget and that of the facilities staff and the resources (equipment, materials, etc.) required to support it. Thus the matrix uses strategic assessment values ranging from <2.5 to >4.0 for this item.

Similarly, Weidner says, the campus average FCI – which ranges from <0.05 to >0.50 on the matrix, is used by facility managers to indicate facility challenges facing a campus and its operations.

For Example ...

An example from the matrix shows how service levels affect a particular characteristic. Here is a look at "building systems reliability" at each of the five service levels:

- 1. breakdown maintenance is rare and limited to vandalism and abuse repairs;
- 2. breakdown maintenance is limited to system components short of mean time between failures;
- 3. building and systems components periodically fail;
- Many systems unreliable constant need for repair backlog of repair needs exceeds resources; and
- 5. Many systems nonfunctional repair only instituted for life safety issues.

For more details, as well as the complete matrix, please see the July/August 2000 issues of Facilities Manager; pages 42-48, or visit http://www.appa.org/resources/ Facilities_Manager/000704/weidner.html>.

Countdown to Publication

The guidelines are in the final editing stage following beta testing by APPA members. They are due to be published this summer and rolled out at APPA's annual convention in Montreal. Nevertheless, Weidner acknowledges, "There are some things that we frankly believe we will not have answered when everything is all done. One of my tasks is to come up with a reasonable feedback form so that, if someone reads our guideline [and sees an error or omission], we can get that feedback."

The Maintenance Staffing Guidelines will be available to APPA members and non members. The organization's Website address is <www.appa.org>.

APPA Calendar of Events

June 11 - 15 Comprehensive Five-Day Training Program for Energy Managers Anaheim, CA

June 17 - 21 Leadership Academy Ft. Lauderdale, FL

July 22 - 24 APPA 2001 Educational Conference & 88th Annual Meeting Montreal, Canada

August 20 - 22 National Construction and Maintenance Expo; Maintaining the Southwest – Las Vegas, NV

September 6 - 8 Restoration & Renovation Conference New Orleans, LA

September 13-15 RMA 2001 Regional Meeting Tucson, AZ

September 16 - 20 APPA's Institute for Facilities Management Scottsdale, AZ

September 20 - 22 Greening of the Campus 4: Moving to the Mainstream Ball State University, Muncie, IN



September 13 -15, 2001 Tucson, AZ

See You There!!!

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The ROCKY MOUNTAIN ASSOCIATION OF PHYSICAL PLANT ADMINISTRATORS OF UNIVERSITIES AND

COLLEGES was organized in February of 1953 for the purpose of promoting the common interest in the planning, maintenance and operation of physical plants of Universities and Colleges in the Rocky Mountain Region: to foster a professional spirit among those engaged in this work; and to support and supplement the activities of its parent organization, the "Association of Higher Education Facilities Officers (APPA)." The Rocky Mountain Region encompasses the states of Arizona, Colorado, Montana, New Mexico, Utah, Wyoming, and in Canada the Provinces of Alberta and Saskatchewan and the Northwest Territories.

REGIONAL OFFICERS 2000-2001

President First Vice President Second Vice President Third Vice President Secretary/Treasurer Newsletter Editor Senior Representative Junior Representative

FUTURE MEETINGS

2001 Annual Meeting 2002 Annual Meeting 2003 Annual Meeting Craig Bohn Paul Smith Steve Baldick David Brixen John Bruning Paul Smith Wayne White Harvey Chace

Tucson, AZ Banff, Alberta, Canada Tempe, AZ University of Utah Pima Community College University of Calgary Arizona State University University of Colorado, Boulder Pima Community College Utah State University University of New Mexico

Pima Community College University of Calgary Arizona State University