

# The End of a Strategic Plan Cycle:

Highlights of Progress

# New Faculty Members



## Dr. Michael Berry, Civil Engineering

Research Assistant Professor

Ph.D. Structural Engineering; Univ. of Washington, Seattle (2006)

**Research Interests:** modeling of reinforced concrete columns subjected to seismic loading; damage prediction in reinforced concrete members; use of recycled materials as cement and aggregate replacements in reinforced concrete; effect of glass fiber reinforced polymers in place of steel rebar in compression members



## Dr. David Miller, Mechanical & Industrial Engineering

Assistant Professor

PhD Aerospace Engineering; Texas A&M University (1999)

**Research Interests:** experimental mechanics of materials; structure/property relationships to strength and damage; shape memory alloys; dynamic testing and properties of materials

# New Faculty Members (cont.)



**Dr. Abigail (Abbie) Richards**, Chemical & Biological Engineering  
Assistant Professor

PhD Chemical Engineering; Washington State University (2007)

**Research Interests:** Iron metabolism of extremophilic bacteria and archaea; effects of extra-cellular microbial chelating agents on subsurface mobility of heavy metals and radionuclides in highly saline and alkaline environments; biofilm growth in extreme environments

**Dr. Wataru Nakagawa**, Electrical & Computer Engineering (photo unavailable)  
Assistant Professor (starting Feb. 2008)

PhD Electrical and Computer Engineering Univ. of California, San Diego (2002)

Senior Scientist, Institute of Microtechnology, Univ. of Neuchâtel, Switzerland

**Research Interests:** near-field optical interactions in nanostructures; novel photonic devices based on nanostructures and near-field optical phenomena; nonlinear optical phenomena in subwavelength optical structures; electromagnetic modeling and analysis of optical nanostructures; optical physics on the nanoscale

# New Faculty Members (cont.)



**Dr. Nic Ward**, WTI (Nov.) / Mechanical & Industrial Engineering (Jan.)

Professor

PhD Human Factors Psychology, Queen's University (1993)

Dir. of HumanFIRST Program/Research Assoc. Professor, Dept. of Mechanical Engineering, University of Minnesota (2000-07)

**Research Interests:** Analysis of human factors related to traffic crashes; design and evaluation of system interfaces (adaptation of users to systems); understanding psychological and social determinants of risk taking; use of virtual reality for research

# New Department Head :: Computer Science



Dr. John Paxton

PhD University of Michigan; Computer Science

## Professional Experience

- Joined CS faculty, 1990
  - Fulbright Professor at The University of Leipzig, AY 2006
  - President's Award for Excellence in Teaching, 2005
  - Short-term Guest Professor at Don Bosco University (El Salvador), Massey University (New Zealand), National University of Ireland, Al-Akhawayn University (Morocco)
- research & teaching** — Artificial intelligence with an emphasis in machine learning, computer science education

# New Department Head :: Electrical & Computer Engineering



Dr. Robert (Rob) C. Maher

PhD Univ. of Illinois-Urbana; Electrical Engineering

## Professional Experience

- joined ECE faculty (fall '02)
- audio software engineering consulting (2000-present)
- Adjunct Assoc. Prof. in ECE **Univ. of Colorado-Boulder** (2001-02)
- **EuPhonics, Inc.**, of Boulder, Colo. (through July '01)
- faculty in EE at **Univ. of Nebraska-Lincoln** (1989-96)

**research & teaching** — digital signal processing with emphasis on digital audio, digital music synthesis, and acoustics

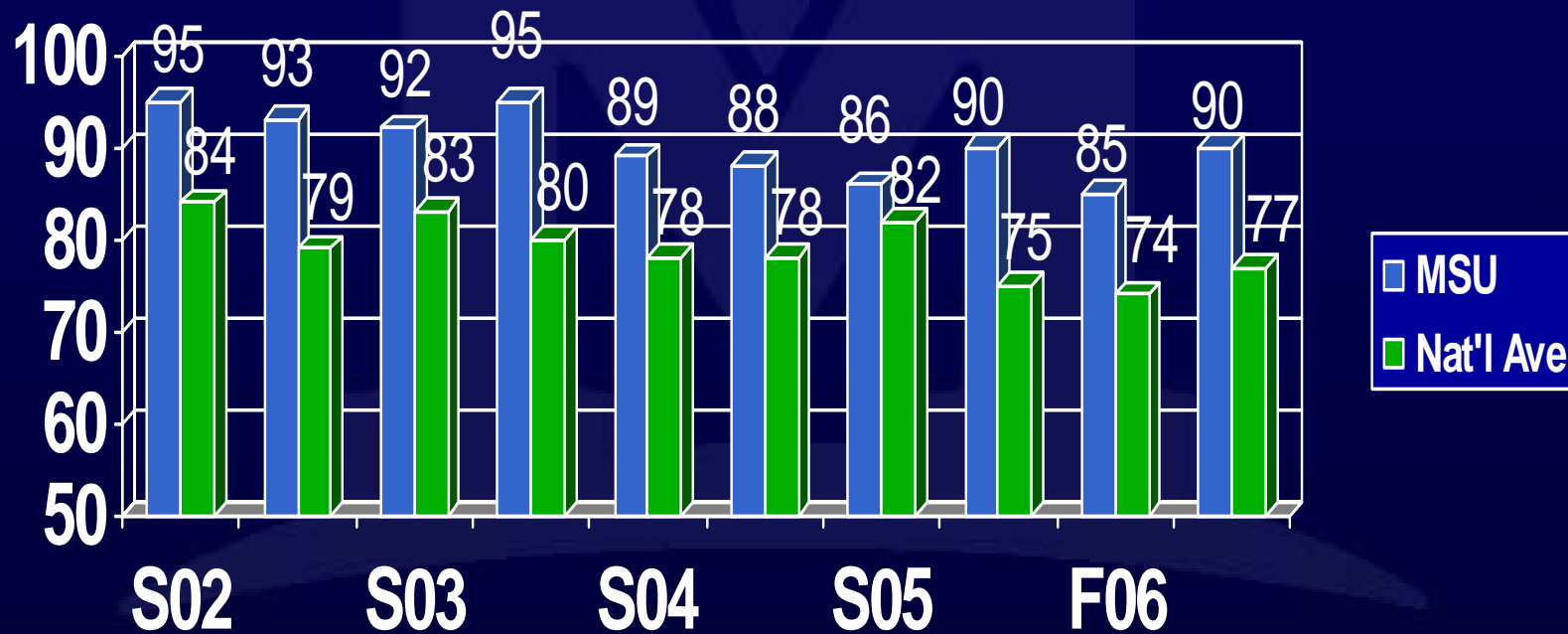
# Strategic Goals

1. Maintain and develop excellent undergraduate engineering, engineering and computer science programs.
2. Encourage growth in discovery and creative activities, and integrate these with student learning to build excellent graduate programs.
3. Recruit, retain, and sustain a highly qualified and energetic faculty.
4. Increase student and faculty diversity within the college.
5. Enable programs that are responsive to the service, outreach, technology transfer, and economic development needs of Montana and beyond.
6. Increase public and private sector support for the college.
7. Increase the visibility of the College of Engineering both regionally and nationally.



# Goal 1: Maintain and develop excellent undergraduate engineering, engineering technology, and computer science programs

FE pass rate in percent



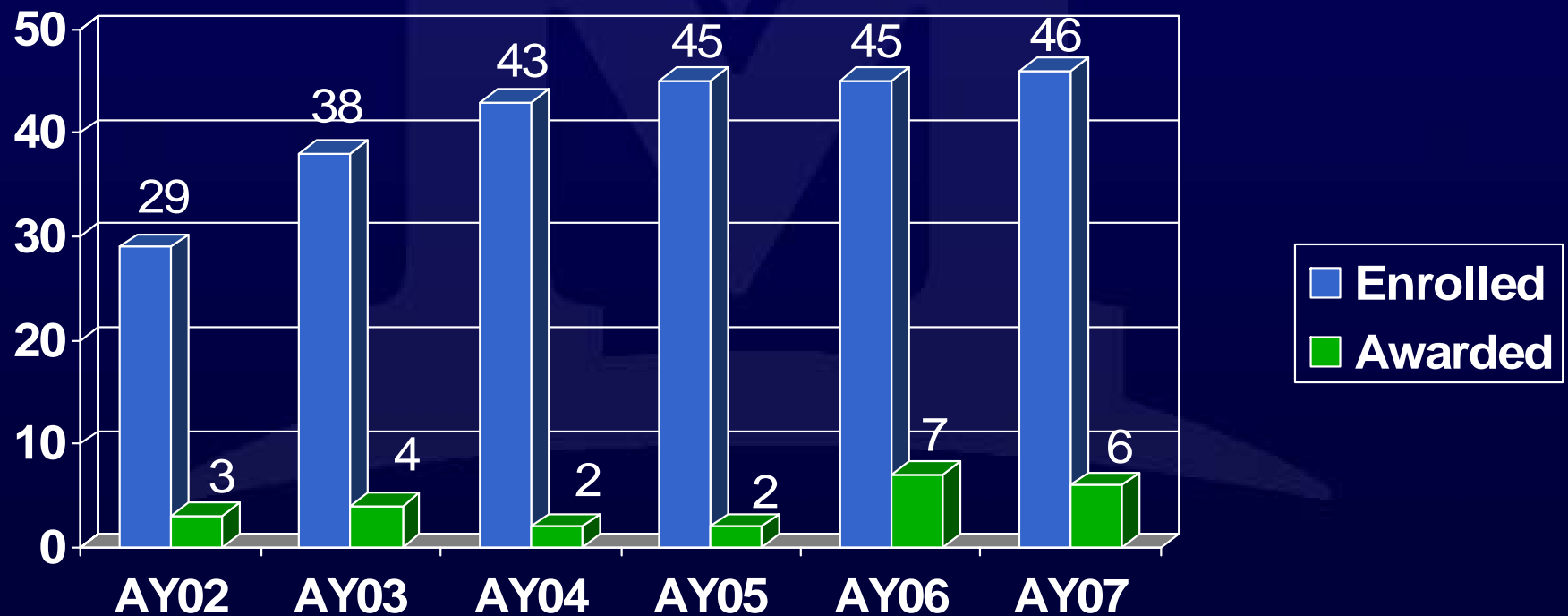


# Goal 1: Maintain and develop excellent undergraduate engineering, engineering technology, and computer science programs

- CS Accreditation through CAC/ABET
- Broad-based curricular enhancements
  - Introduction to Engineering Design (ENGR310)
  - Technology, Innovation & Society (ENGR125)

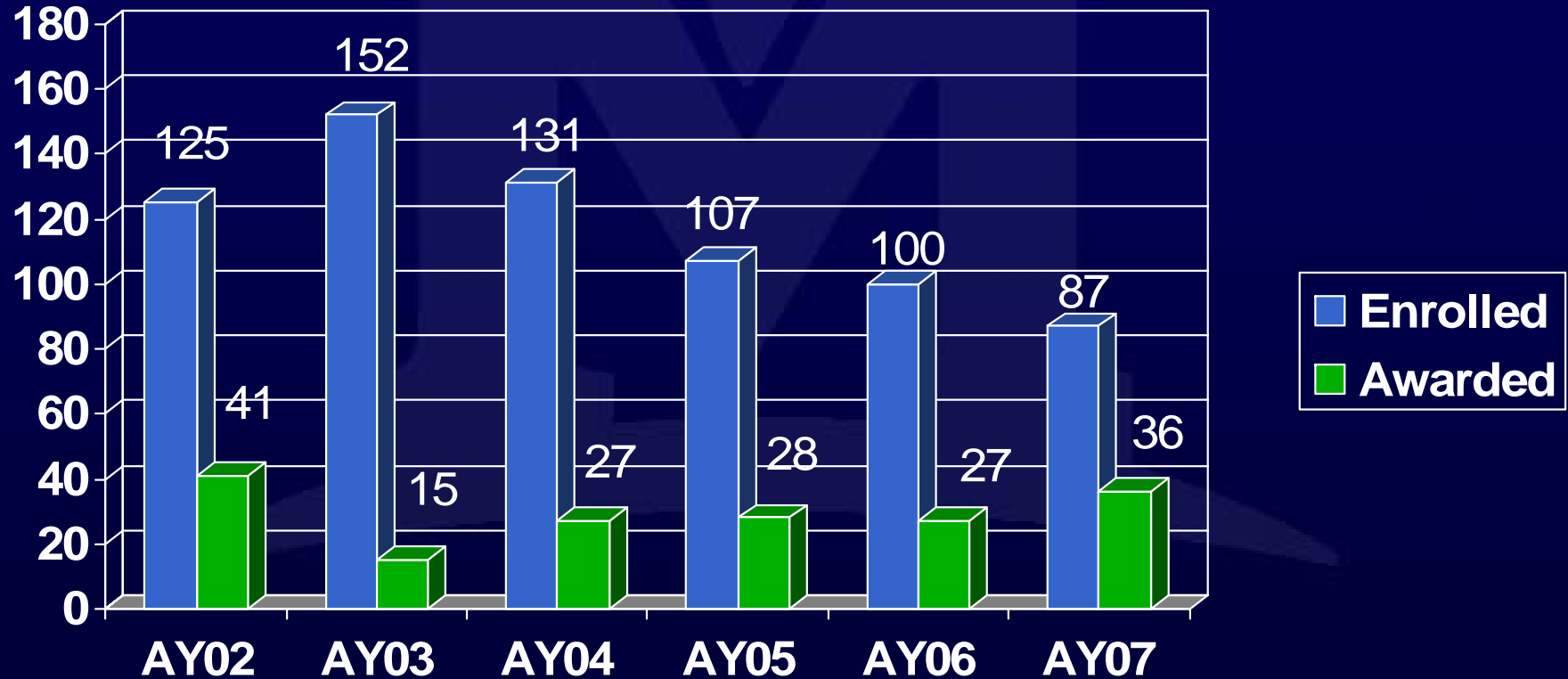
## Goal 2: Encourage growth in discovery and creative activities, and integrate these with student learning to build excellent graduate programs

### PhD students enrolled and degrees awarded



## Goal 2: Encourage growth in discovery and creative activities, and integrate these with student learning to build excellent graduate programs

M.S. students enrolled and degrees awarded



## Goal 3: Recruit, retain, and sustain a highly qualified and energetic faculty

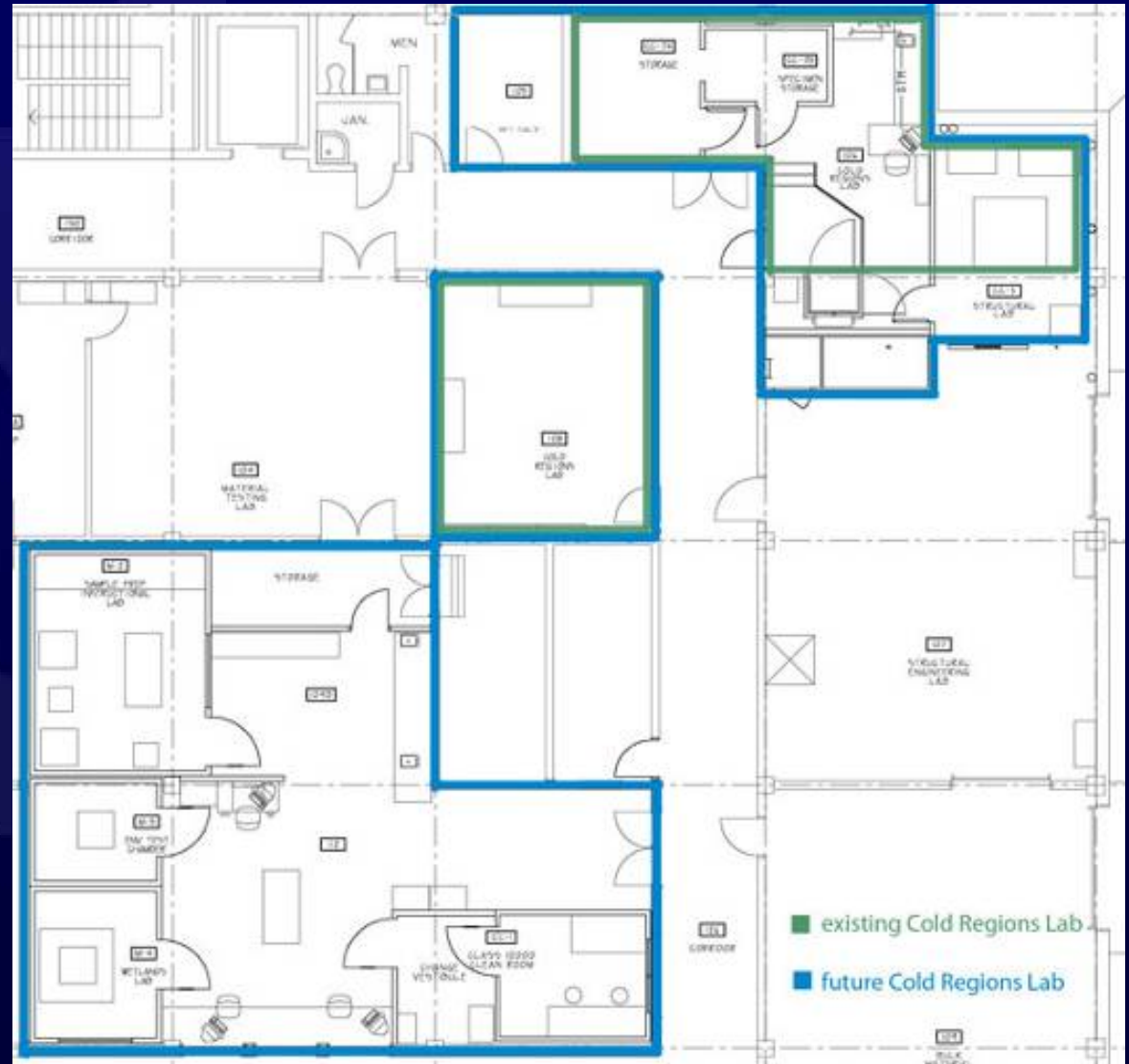
Number of nationally competitive laboratories (linked to Goal 2)

- Montana Microfabrication Facility (MMF)
- Magnetic Resonance Microscopy (MRM)
- Materials
- OpTeC



# Nationally competitive laboratories (cont.)

## Cold Regions Laboratory



## Nationally competitive laboratories (cont.)

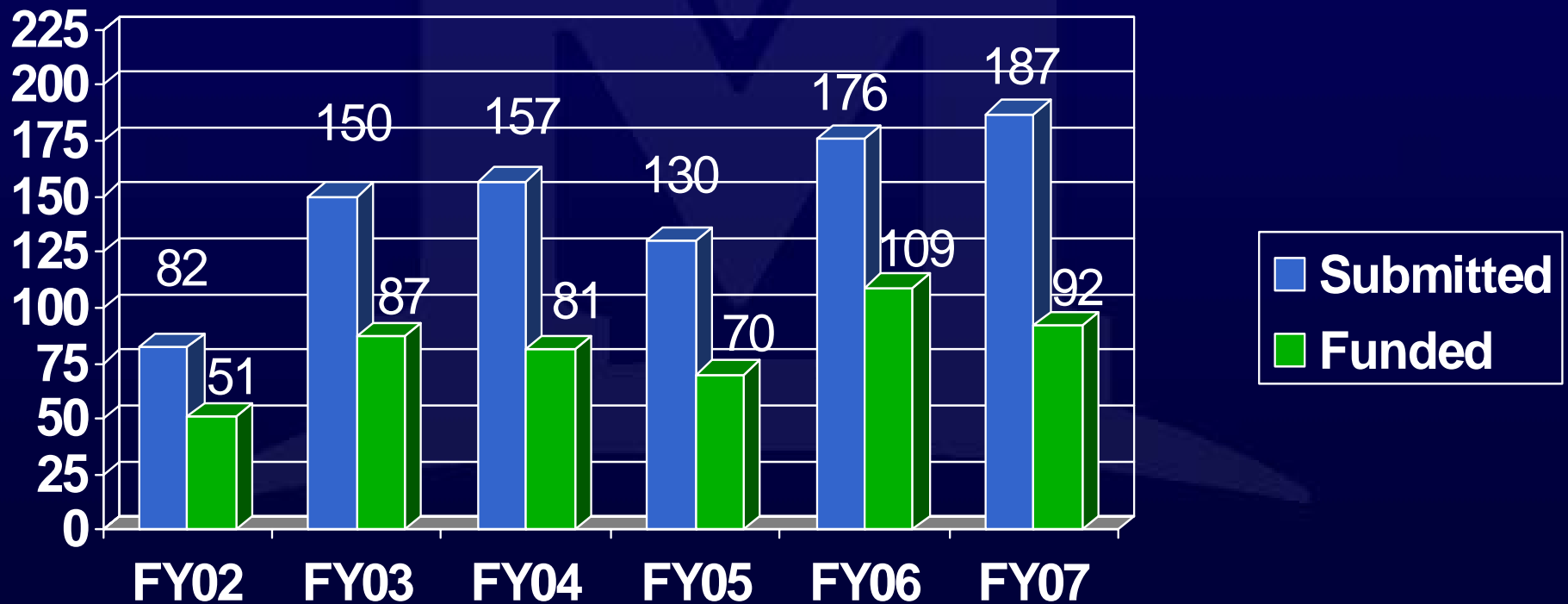
- Western Transportation Institute (WTI)
  - Driving Simulator Lab
  - Transportation Research Application and Instrumentation Lab (TRAIL)
  - Lewistown Cold-Regions Testbed
  - Corrosion, Electrochemistry, and Analytical Lab
  - others





# Goal 3: Recruit, retain, and sustain a highly qualified and energetic faculty

Number of COE proposal submissions and number funded





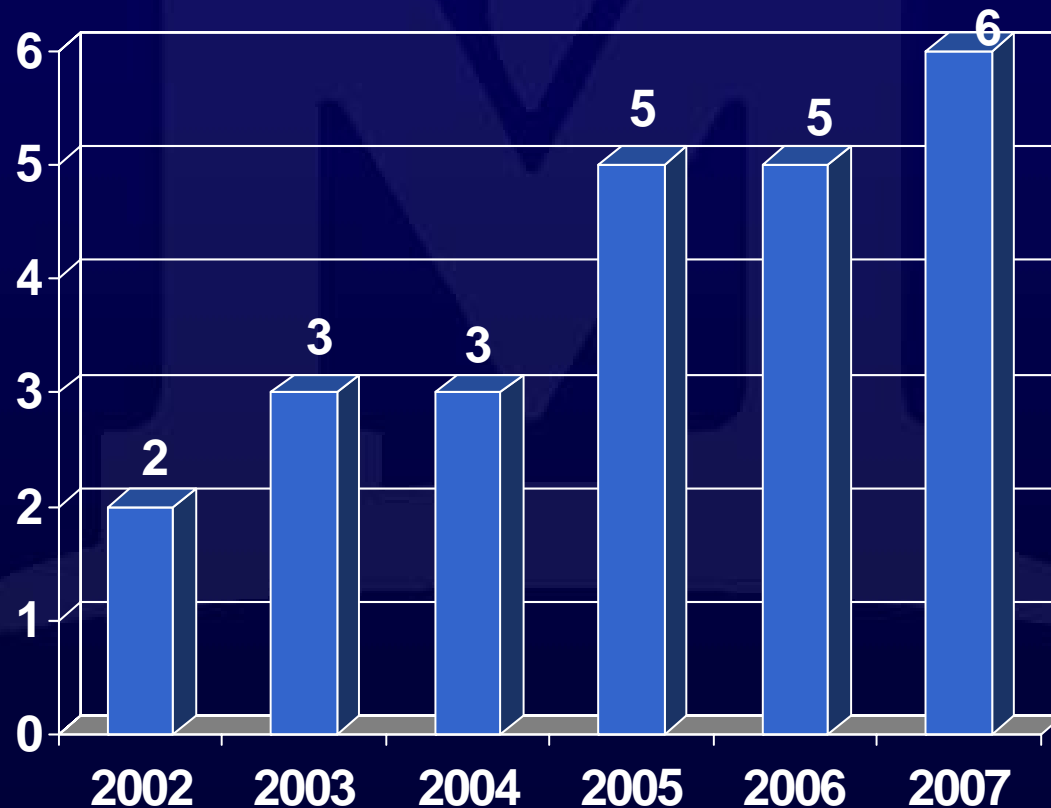
# Goal 3: Recruit, retain, and sustain a highly qualified and energetic faculty

## Annual Research Expenditures in Million \$\$



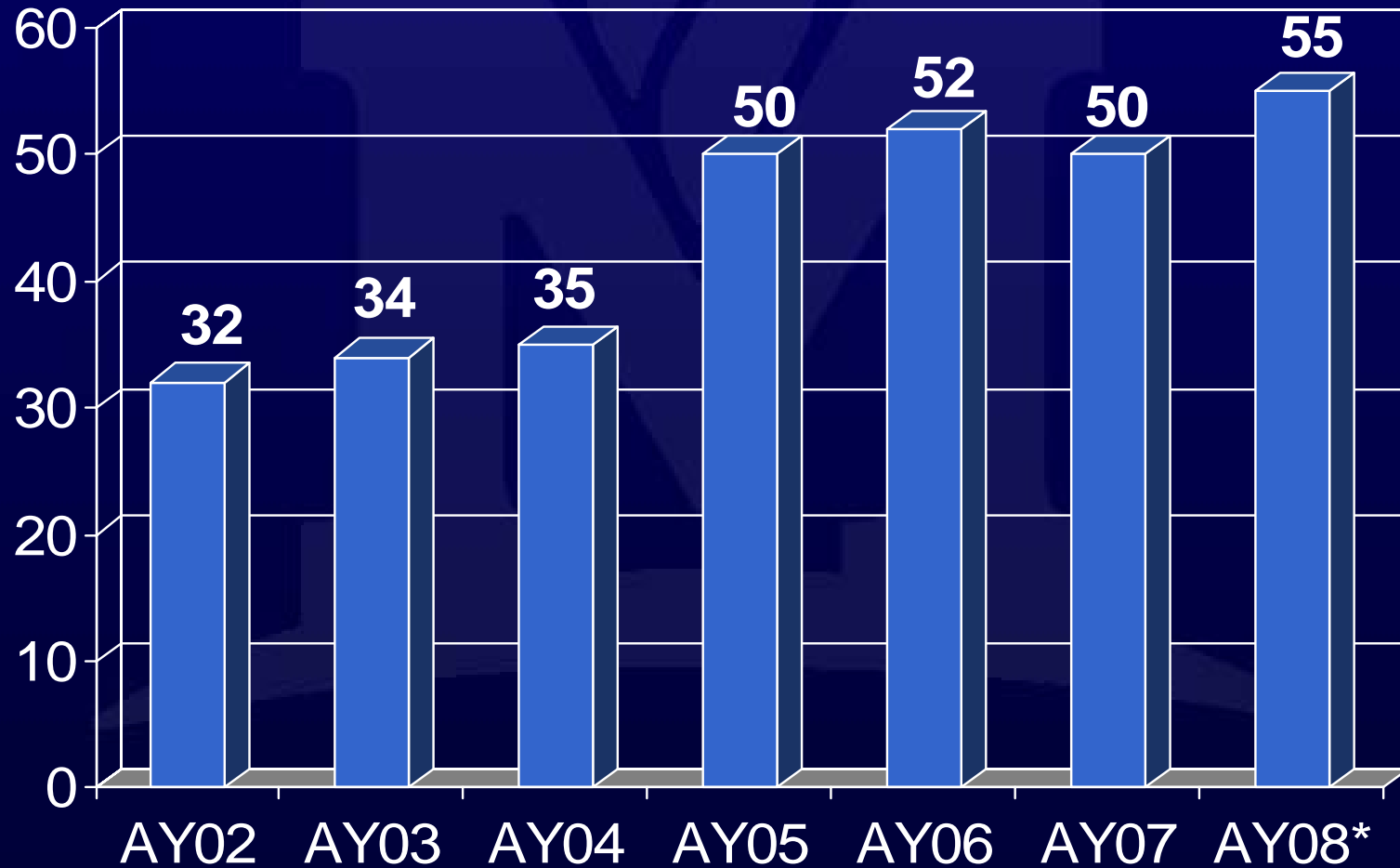
## Goal 4: Increase student and faculty diversity within the college

Number of women tenure-track faculty in the college



# Goal 4: Increase student and faculty diversity within the college

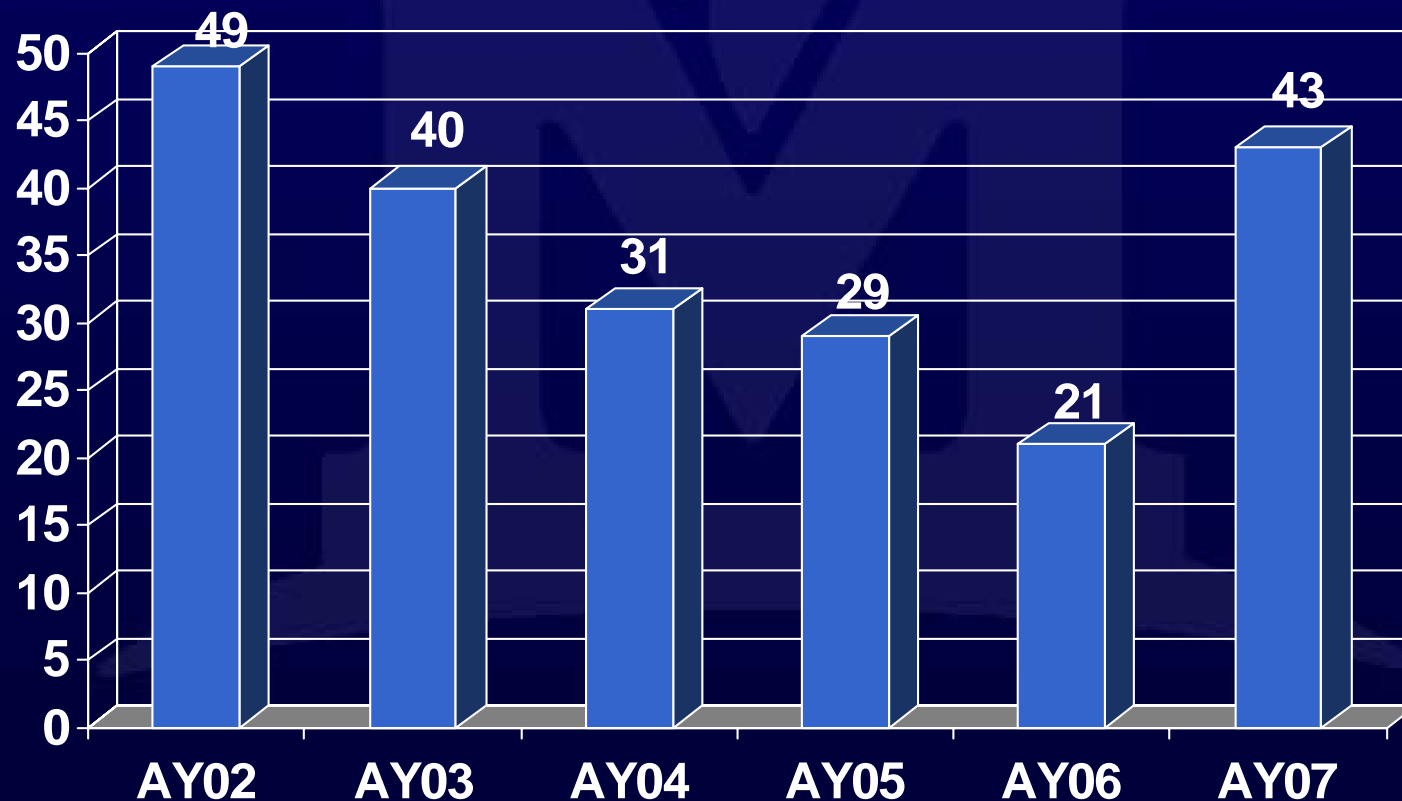
Number of Native American students enrolled in the college



\*tentative

## Goal 4: Increase student and faculty diversity within the college

Number of UG International students enrolled in the college



**Goal 5: Enable programs that are responsive to the service, outreach, technology transfer, and economic development needs of Montana and beyond.**

- The COE sponsored *FIRST* Regional robotics tournaments for the past 3 years for 1,200+ students from across Montana and region
- 33 COE faculty and staff supported 53 outreach events in 2006-07
- EMPower staff traveled 13k+ miles throughout Montana in past year to connect to Native American communities
  - hosted 500+ K-12 students on campus for engineering/computer science activities
- MMEC ranked first for customer service among the 59 NIST-MEP centers for 3 quarters in '05-'06

**Goal 5: Enable programs that are responsive to the service, outreach, technology transfer, and economic development needs of Montana and beyond. (cont.)**

- MMEC helped Montana businesses deliver \$88mil economic impact in 2005-06
  - MMEC clients reported that direct services resulted in 169 new and 150 retained jobs
- National UTC designation for WTI (1 of 10)
- With WTI's new traffic plan, all parking lots cleared in less than an hour after first home football game in '07

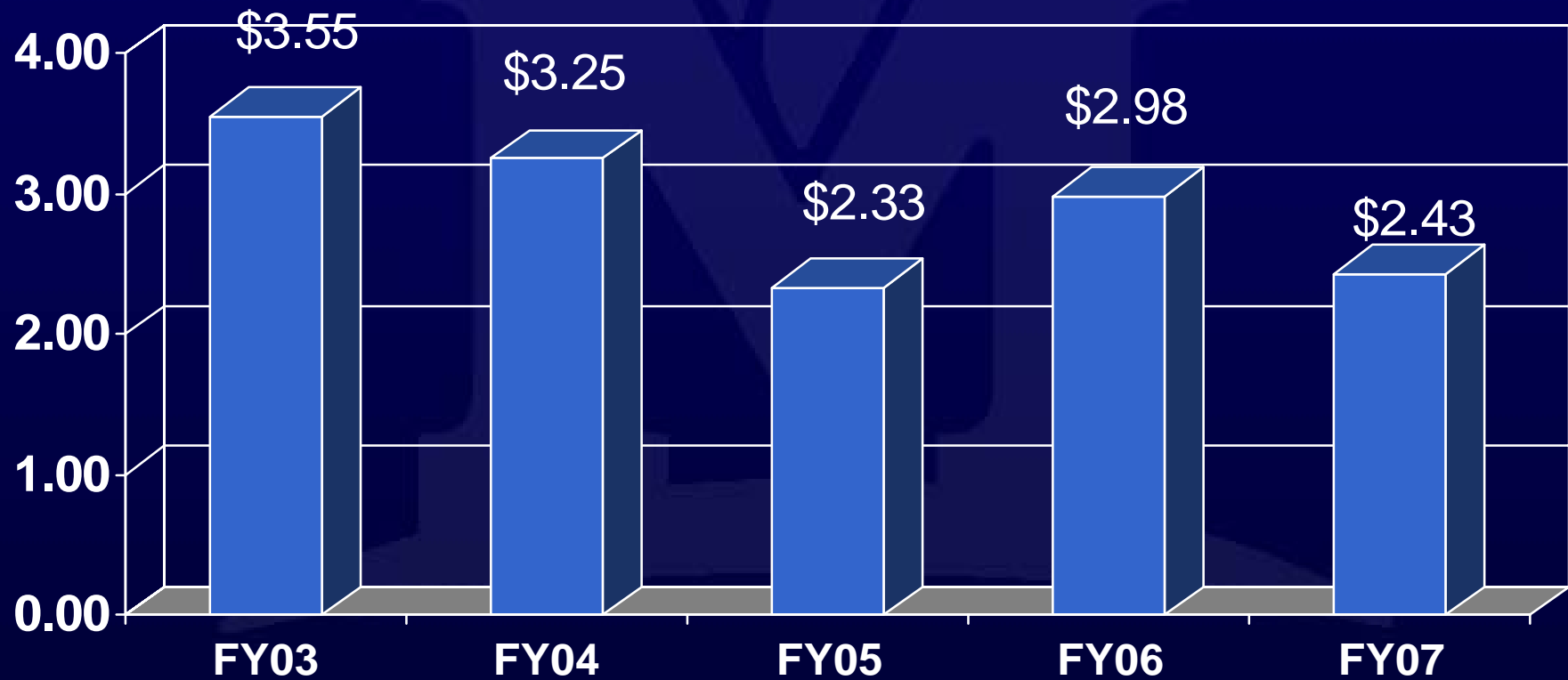
## Goal 6: Increase public and private sector support for the college

- Boeing Endowed Professorship (\$1M); *Dr. Durward Sobek*
- Lysle Wood Endowed Professorship in M&IE Department (\$500K); *Dr. Doug Cairns*
- Joel Long Endowed Professorship in CE (\$1M); *Dr. Brett Gunnink*
- William V. Benjamin Endowed Scholarships (\$3M); *undergraduate and graduate student recipients*
- CET Endowed Industry Chair (\$500K+)
- RightNow Technologies' Distinguished Professorship in Computer Science (\$240K); *search is underway*
- others pending



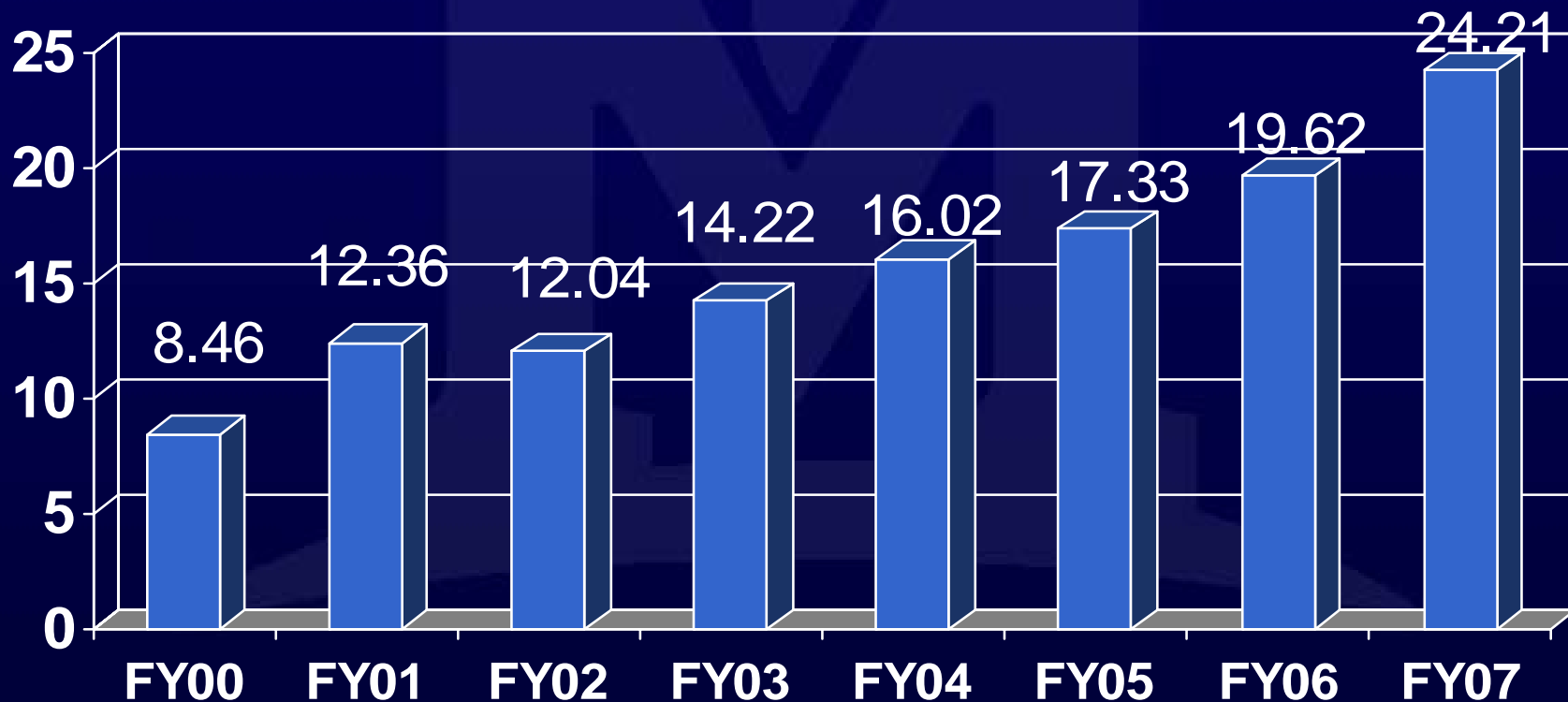
## Goal 6: Increase public and private sector support for the college (cont.)

### Annual Gifts to the COE in \$ Millions



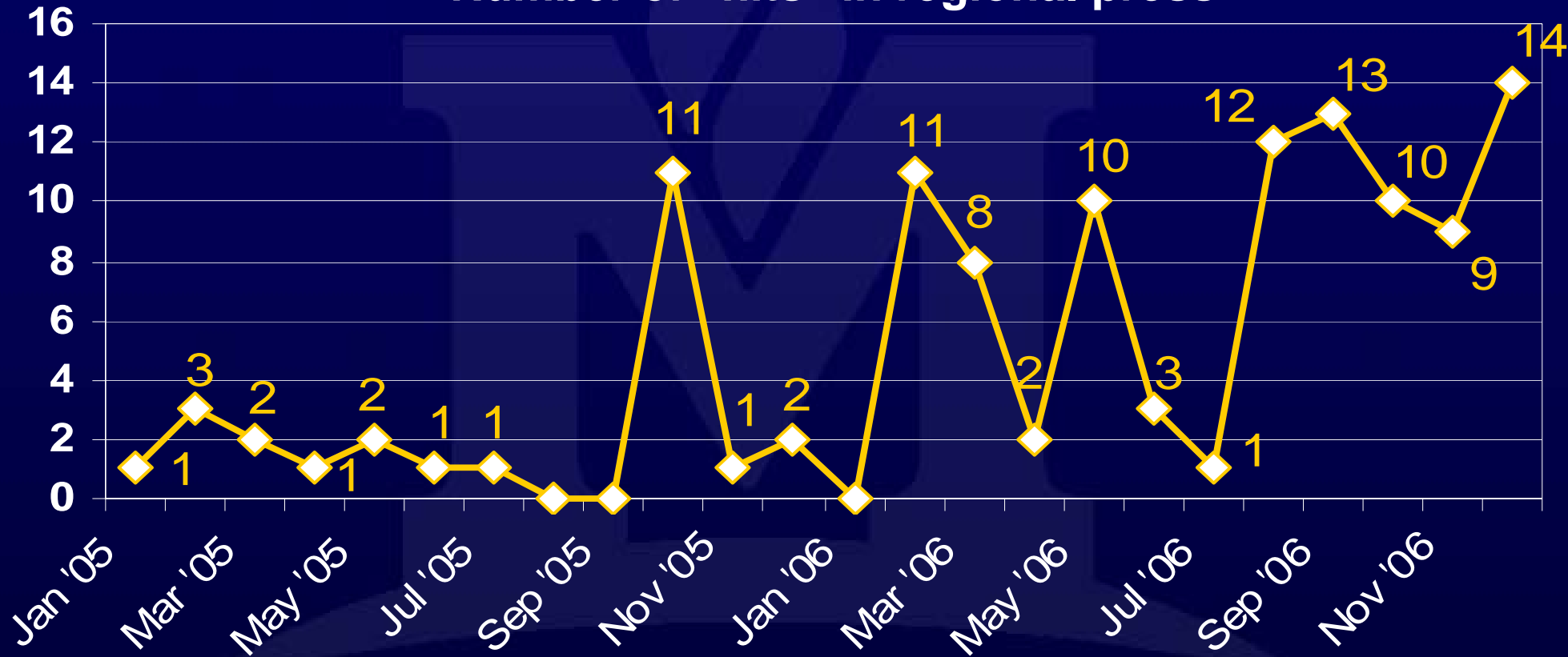
# Goal 6: Increase public and private sector support for the college

## COE Endowment Balance in \$ Millions



# Goal 7: Increase the visibility of the College of Engineering both regionally and nationally

## Number of "hits" in regional press

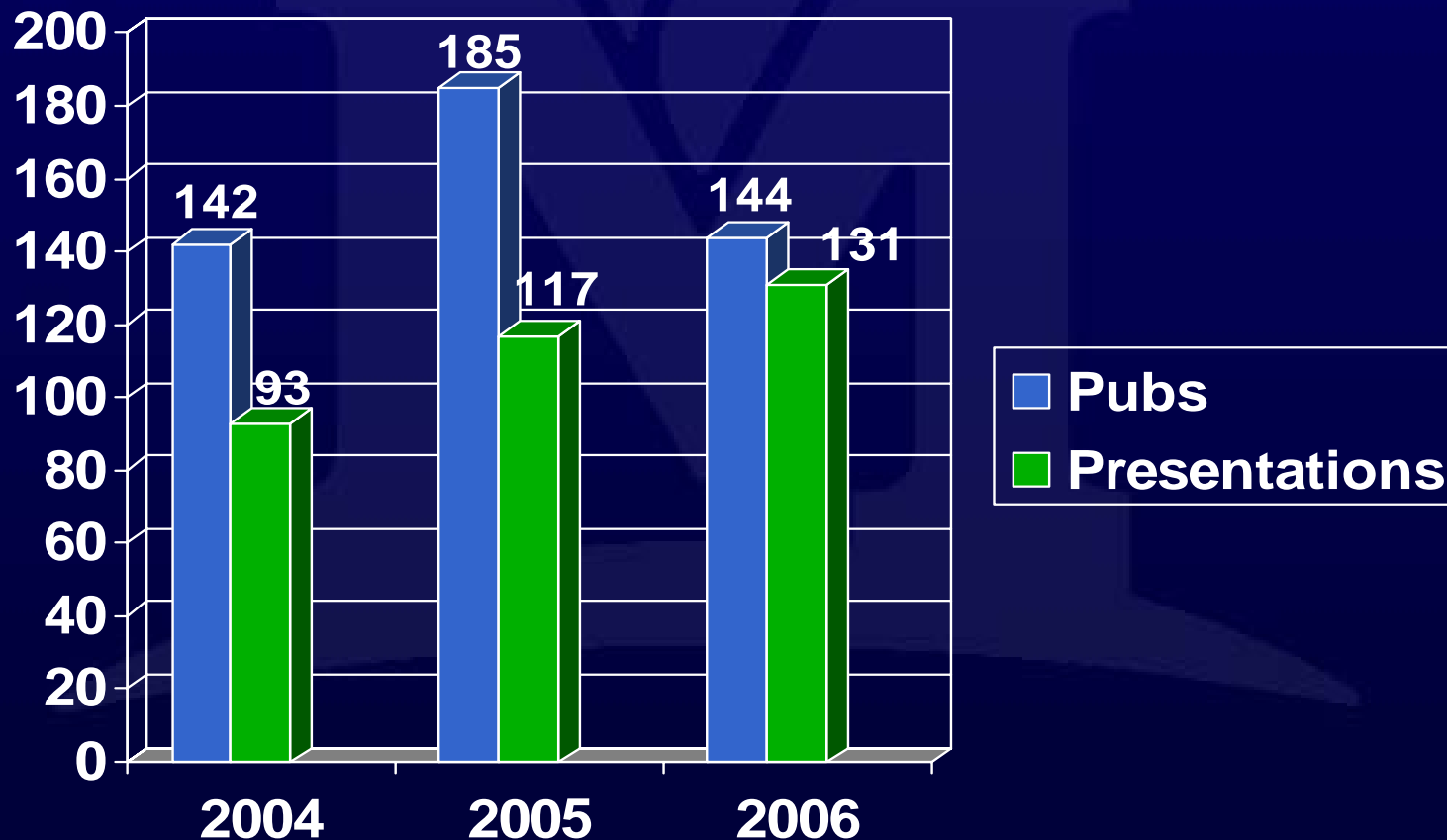


## Goal 7: Increase the visibility of the College of Engineering both regionally and nationally

- *The Chronicle of Higher Education* featured article in '05 about Dr. Becker's use of robotics in teaching EE 101
- *Prism* (ASEE) highlighted the Designing Our Community program in '06
- *Change: The Magazine of Higher Learning* published Plumb/Reis's article about the Engineering Schools of the West Initiative (May '07)

# Goal 7: Increase the visibility of the College of Engineering both regionally and nationally

## COE Faculty Refereed Publications and Formal Presentations at Professional Conferences



# Next Steps

- Strategic Planning Advisory Committee
  - Charged to draft “refocus” of plan for next 3-5 years
- Capital Campaign a high priority
  - Raise endowments from current 18% level of peers
- Visit website ([www.coe.montana.edu](http://www.coe.montana.edu)) for updates

Thank you,  
and thank you again,  
for all that you do!