

Framework for Excellence
Research & Engagement Strategy

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Agenda

- Situation Analysis
- Growth Strategy
- Centers
- Infrastructure
- Engagement

Carnegie Foundation Classifications

- Basic Classification: Research University, Very High activity “RU/VH”
 - 96 U.S. institutions
 - 63 Public, including 36 Land Grant
 - New England: BU, Brandeis, Brown, Dartmouth, Harvard, MIT, Tufts, UConn, UMass Amherst, Yale

- Community Engagement Classification
 - *Collaboration between institutions of higher education and their larger communities for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity.*

Comparison to Q2 Public Research Universities

Median Values

	UMass Amherst	26-50 Public
Total Research (\$1000)	\$136,057	\$181,233
Natl Acad Members	9	4
Faculty Awards	11	6
Doctorates	293	177
Post-Docs	182	134

Source: The Center for Measuring University Performance, <http://mup.asu.edu/>, viewed 1/31/2010

AAU Comparison Cohort

- Indiana
- Penn State
- Rutgers
- U California Berkeley
- U California Santa Barbara
- U Colorado Boulder
- U Kansas
- U Maryland College Park
- U Missouri Columbia
- U Texas Austin

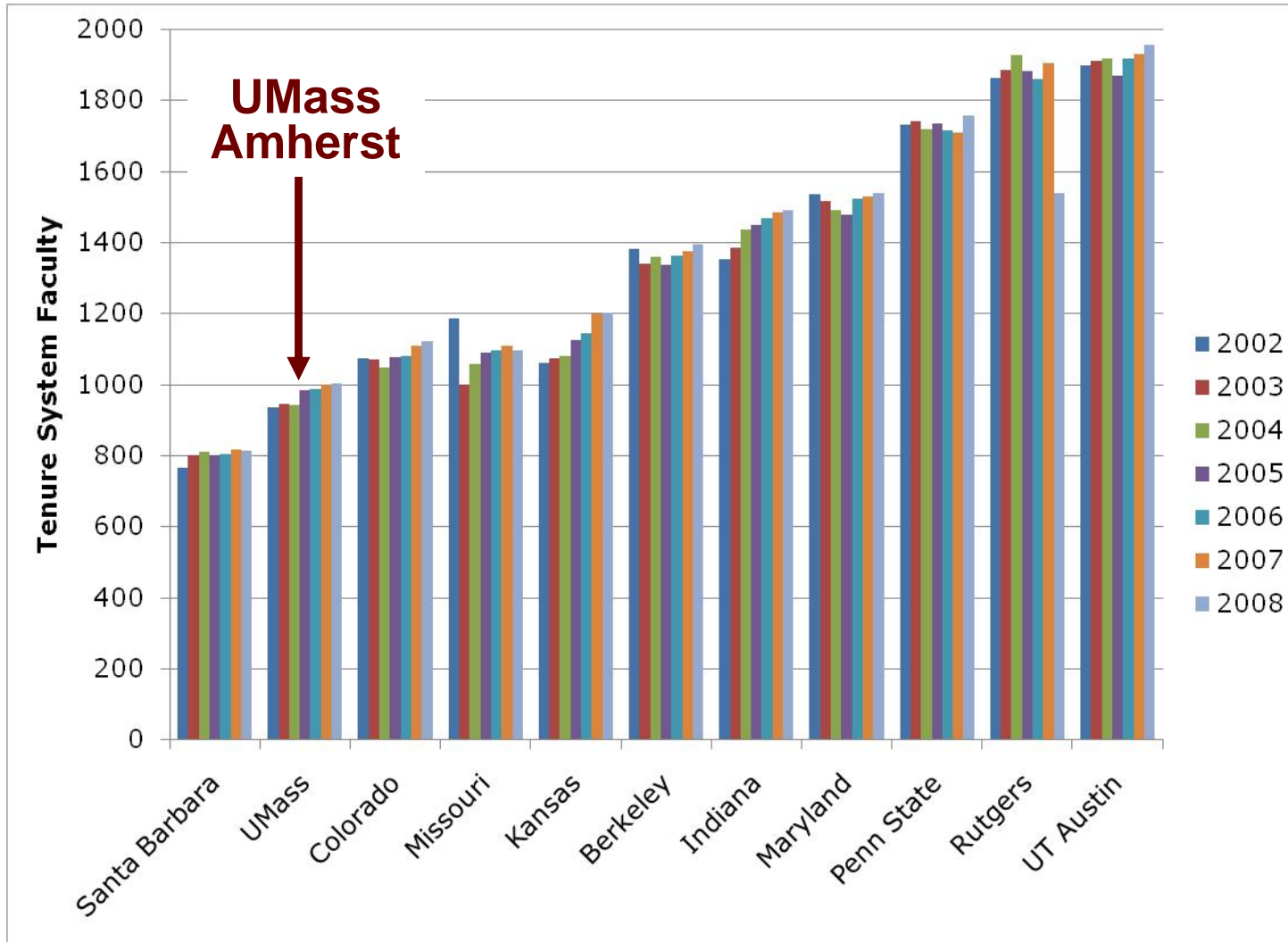
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Median Values

	UMass Amherst	AAU Cohort
Total Research (\$1000)	\$136,057	\$250,255
Natl Acad Members	9	26
Faculty Awards	11	17
Doctorates	293	370
Post-Docs	182	203

Tenure System Faculty (AAU Cohort)



Source: U.S. DoEd., Integrated Postsecondary Education Data System, <http://nces.ed.gov/ipeds/pas>, viewed 1/31/2010

Comparison to AAU Cohort

Median Values

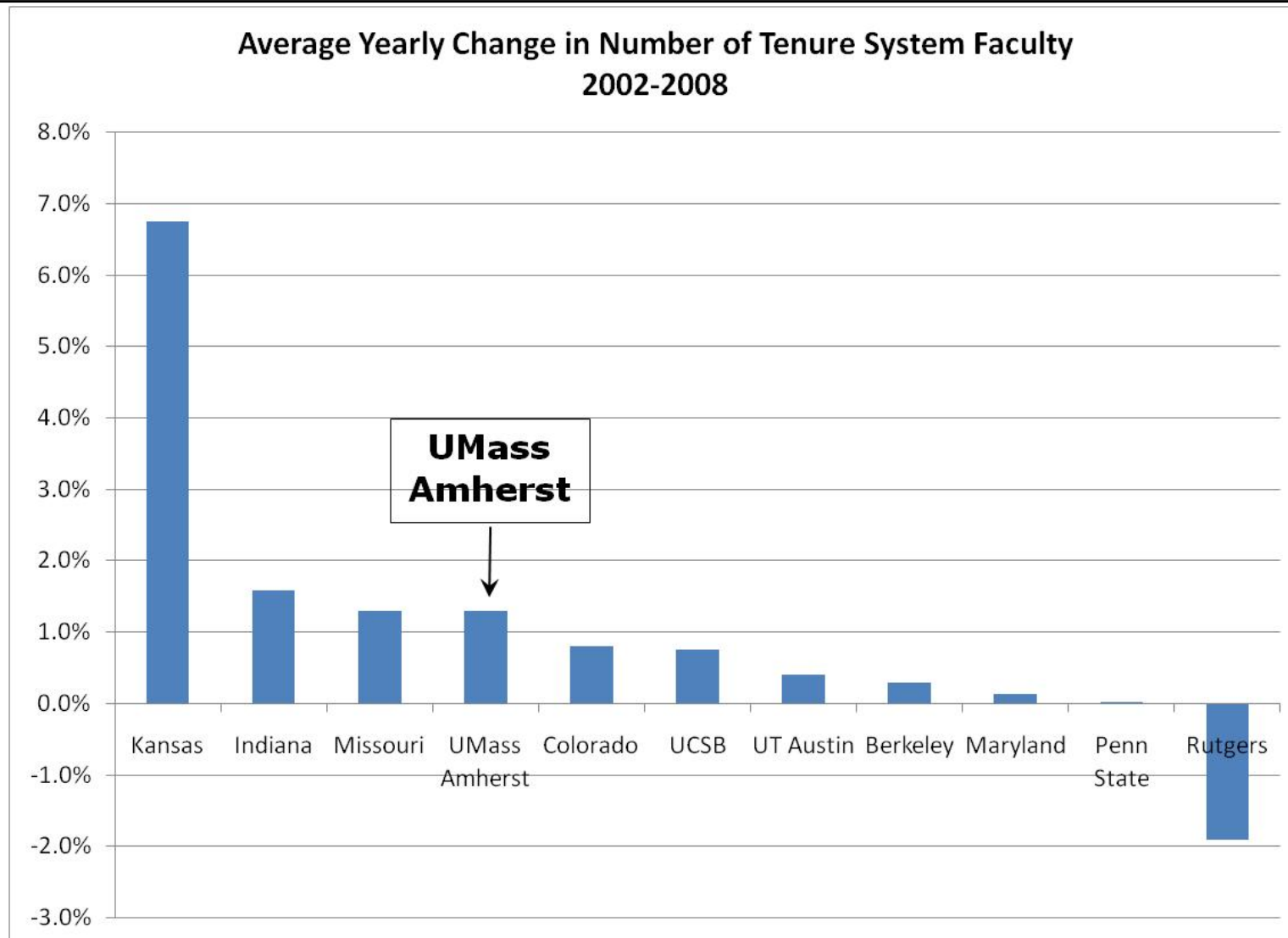
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Per FTE Tenure System Faculty

	UMass Amherst	AAU Cohort
Total Research (\$1000)	138	221
Natl Acad Members	0.9%	1.8%
Faculty Awards	1.1%	1.3%
Doctorates	0.29	0.33
Post-Docs	0.18	0.14

Source: The Center for Measuring University Performance, <http://mup.asu.edu/>, viewed 1/31/2010

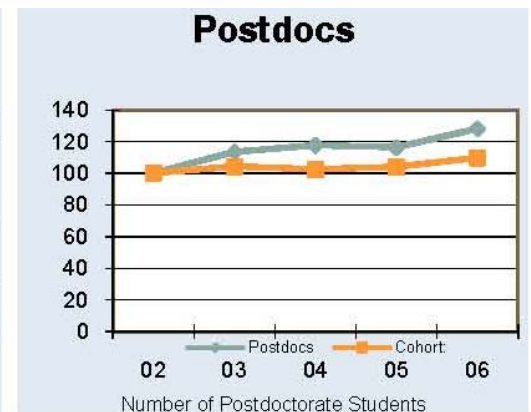
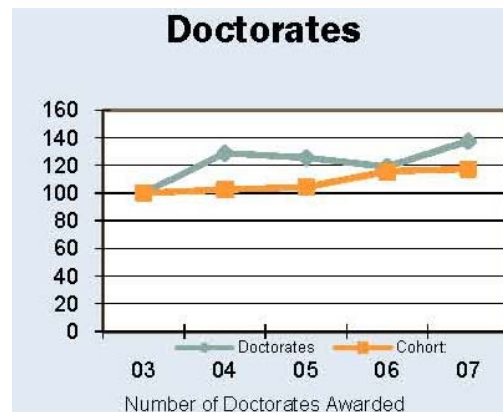
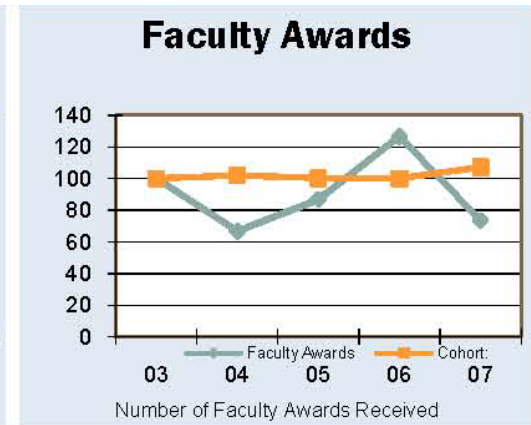
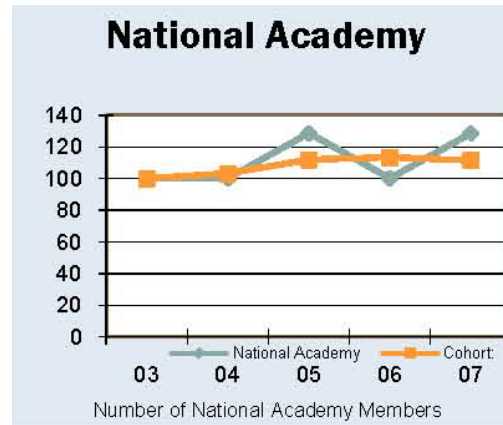
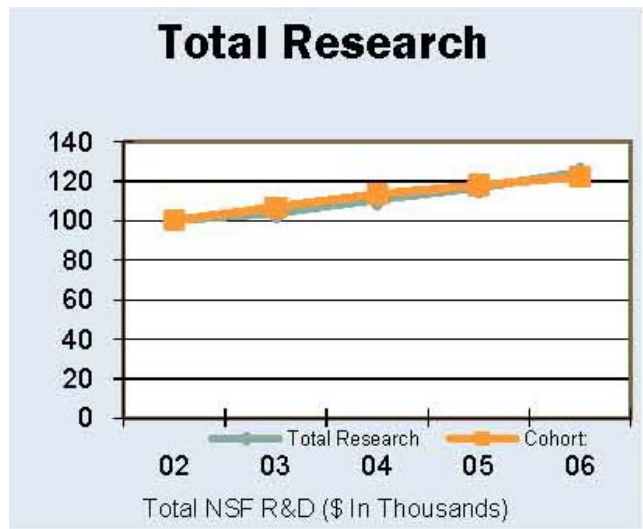
Rates of Change



Rates of Change (2002=100)

UMass Amherst ●—●

AAU Cohort ●—●



Essential to accelerate growth to gain in rankings

Source: The Center for Measuring University Performance, <http://mup.asu.edu/>, viewed 1/31/2010

Growth Strategy

Accelerators



Accelerator: ARRA Research Funding, 3/09-12/09

Sponsor	Pending		Awards	
	N	Proposed	N	Awarded
DOC	1	\$11,821,974	0	\$0
DOE	15	\$11,317,437	1	\$16,000,000
DHHS	30	\$48,511,393	22	\$11,585,739
NSF	0	\$0	28	\$11,121,510
Other Univ	14	\$1,972,567	2	\$251,179
Other	10	\$1,033,310	2	\$174,922
	70	\$74,656,681	55	\$39,133,350

Federal ARRA R&D Funds were +23% of base FY09 Budgets (Non-Defense). UMass Amherst ARRA Awards to date are +44% of our FY09 non-ARRA Federal Awards.

Accelerators

- Broaden Support – Internal & External
 - Facilities
 - Staff Support
 - Seed and Matching Funds
 - Simplified Standard form SRA and CVIP process
- Diversify Funding Sources
 - NIH, DoD, DOE, USDA
 - Innovation Institute
- Hire New Faculty
 - Maintain current areas of strength
 - Hire in emerging areas to leverage – new RFP process
- Collaborate in Centers & Institutes

Faculty RFP Hiring – 9 Clusters

- Renewable Energy Biofuels: BMB, Microbiology, PSIS, Chem Eng
- Biophysics: Biology, Physics
- Cellular Engineering: BMB, Chemistry, Chem Eng
- Computational Social Science: CS, Math & Stat, Pol Sci, Sociology
- Heritage Studies: History, Anthropology, LARP
- Language, Experimentation & Computation: CS, Psych, Linguistics
- Millimeter Wave and Terahertz Imaging: ECE
- Neuro-Developmental Disabilities: Special Ed
- Cyber Security: FOM

Accelerators: Broaden Internal Support

- Office of Research Development
 - Initiative and Proposal Development
 - Workshops, Trainings and Symposia
 - Funding Opportunity Intelligence
 - Research Activity Tracking and Communications
- Senior Faculty Advisor(s)
- Add two new professional staff for compliance
- Grants
 - Faculty Research Grants, Book Subvention
 - President's S&T and Creative Economy Funds
 - Campus seed funds
- New Facilities

Accelerators: Broaden External Support

- Integrate Federal Government Relations into Research Development Office
- Increase Federal agency intelligence
- Engage Partners
- Emphasize Research & Creative Activity in Branding Initiative

Accelerator: Innovation Institute

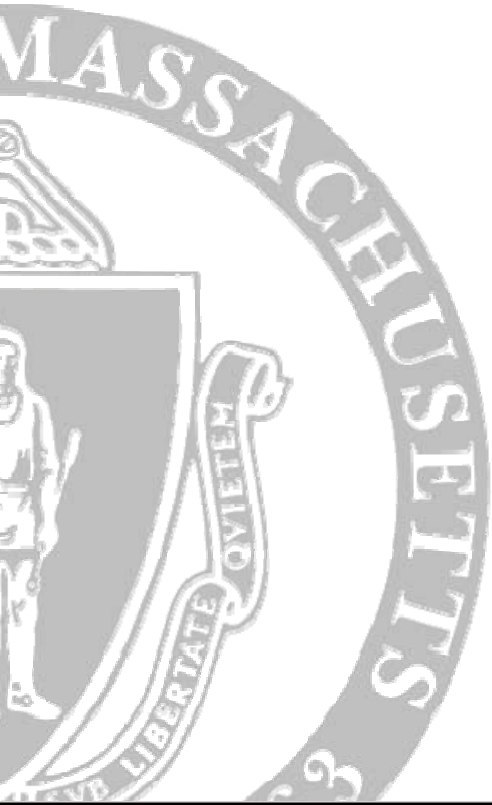
- Concept stage
- Separate legal entity, wholly owned
- Complementary to campus programs
- Facilitates new grants and contracts
 - Not fundamental research
 - Confidential
- Common at major research universities
- We are working on a business plan

Accelerator: Collaborations

- Rigor: Academic Disciplines
- Relevance: Collaborations
 - Human Health
 - Clean Energy
 - Sustainable Environment
 - Safety & Security
 - Economic Progress
- Rigor + Relevance fuels Innovation
- Requires
 - Inter-disciplinary and inter-institutional collaborations
 - Engagement with stakeholders

Centers

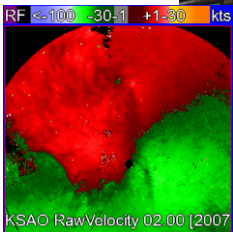
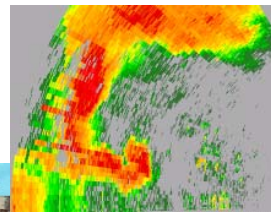
Examples of Success
Care & Feeding
Emerging Areas



CASA - NSF Engineering Research Center



*Collaborative
Adaptive
Sensing of the
Atmosphere*



Collaboration, partnerships:

- *disciplines:* ECE (radar), CS (computing, networking) atmospheric science, meteorology, OR, sociology
- *academic institutions:* UMass, Colorado State, Oklahoma, Puerto Rico, more...
- *industry:* Raytheon key founding partner
- *state:* support, prior to JAll

Leadership, Status

- D. McLaughlin (ECE), J. Kurose (CS)
- 7th of 10 years, \$40M funding

Center for Public Policy & Administration

Interdisciplinary public policy research, teaching, engagement

- 19 faculty, 9 departments
- Center of centers:
 - National Center for Digital Government
 - Science, Technology & Society Initiative
 - Public Engagement Project
- Leadership: J. Fountain, M. V. Lee Badgett
- Education
 - MA, public policy & admin
 - Undergrad certificat in public policy
- Public Engagement Project
 - supporting taking their research outside academy
 - workshop, panels, lecture



Growing Large-Scale Research Centers

1. Faculty leadership, track record
2. Coordinated cluster hiring
3. Small group grants
4. Competition for seed funds, facilities
5. Medium size group grants, engagement of stakeholders
6. Major extramural support, or growth in enrollments

S&T Initiatives

2005	<ul style="list-style-type: none"> ❖ MassNanoTech ❖ Security, Emergency Preparedness ❖ Pioneer Valley Life Science Inst 	<p>Nanotech Centers</p> <ul style="list-style-type: none"> \$40M NSF Center Hierarchical Manufacturing \$13M DOE Energy Frontiers Center
2006	<ul style="list-style-type: none"> ❖ Center for Renewable Energy ❖ Wireless Communications Center 	<p>MASSCREST</p> <ul style="list-style-type: none"> \$1.5M NSF Center Chem Innovations \$1.6M additional federal funding \$ 40M NSF CCI Phase II (site visit 3/10)
2007	<ul style="list-style-type: none"> ❖ NanoMedicine Inst. ❖ Center for Networked Sensing ❖ Intelligent Transportation Sys. Collab. 	<p>RFID, Security, Privacy</p> <ul style="list-style-type: none"> 2009 MIT TR35 Innovator of Year \$1.5 M NSF Trustworthy Computing MA EOT, US DOT contracts
2008	<ul style="list-style-type: none"> ❖ Consortium on Security and Privacy ❖ Clean Energy for the Commonwealth ❖ Total Knee and Hip Replacement Surgery ❖ Offshore Wind 	<p>NSF ERC with U Houston, full prop.</p>
2009	<ul style="list-style-type: none"> ❖ Green Computing Initiative ❖ Climate Change, New England ❖ Inst. Massachusetts Biofuels Research 	<p>Green Computing</p> <ul style="list-style-type: none"> \$80M Green Holyoke HPC \$1M NSF MRI (5-college) proposal

Creative Economy Initiatives

A. Kinney, L. Kidder, English	Youth and Shakespeare: Reconstructing the Connection
H. Renski , LARP	Place Attachment and Entrepreneurship in the Massachusetts Economy
S. Schreiber, Art	Architecture and Design Exploration Program for Inner City Youths in Springfield
D. Glassberg, History	Developing a Master Plan for Heritage Tourism at the W.E.B. Du Bois Boyhood Homesite and other areas in Great Barrington
L. Lovett, History	Forty Years of Women's Creative Economies in Western Massachusetts, 1965-2005
S. Gallagher, Political Science A. Shabazz, Afro-American B. Wilcox, UMass Press	Reading New England: Using Digital Resources to Explore Landmark Texts
M. Duffy, Sociology N. Folbre, Economics (UMA) R. Albelda, Economics (UMB)	Taking Care: The Costs and Contributions of Care Work in Massachusetts
M. Schwartz, Dance	Dance in Three Stages
J. Martin, HFA	Benchmarking South Coast and Pioneer Valley Creative Economies

Infrastructure

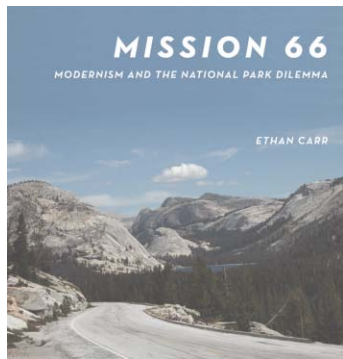
UMass Press

New Laboratory Science Building

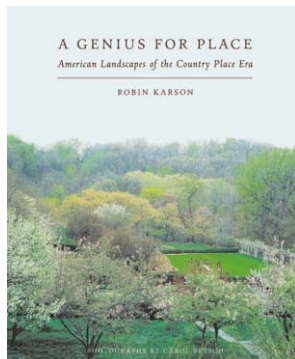
High Performance Computing



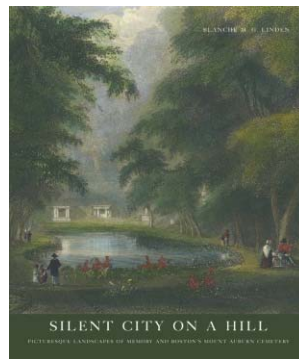
UMass Press, Recent Awards & Honors



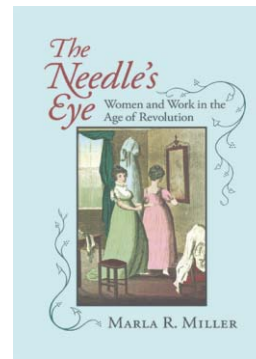
Mission 66: Modernism and the National Park Dilemma
 Winner of the Elisabeth Blair MacDougall Award of the Society of Architectural Historians



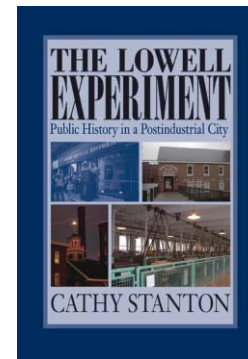
A Genius for Place
 Winner of the John Brinkerhoff Jackson Prize of the Foundation for Landscape Studies



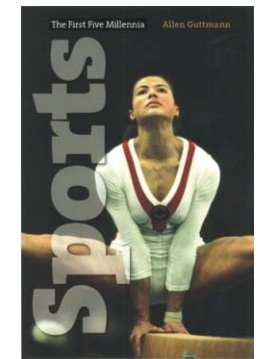
Silent City on a Hill
 Winner of the Historic Preservation Book Award



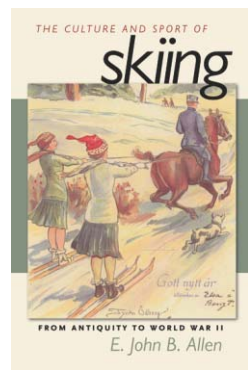
The Needle's Eye
 Winner of the Millia Davenport Publication Award of the Costume Society of America



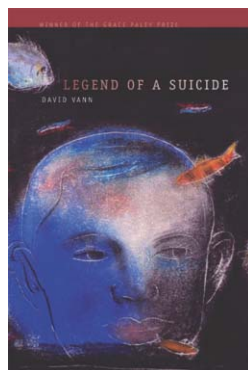
The Lowell Experiment
 Winner of the Book Award of the National Council on Public History



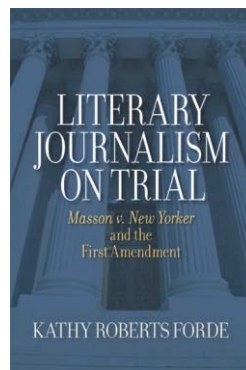
Sports: The First Five Millennia
 Winner of the Book Award of the North American Society for Sport History



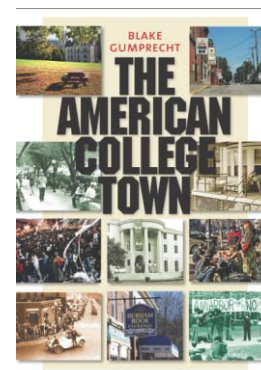
The Culture and Sport of Skiing
 Winner of the Ullr Award from the International Skiing History Association



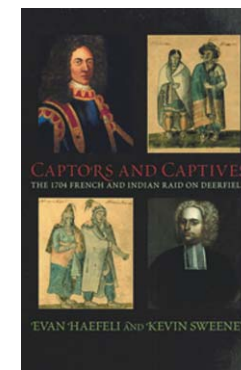
Legend of a Suicide
 Winner of the Grace Paley Award
 New York Times Editor's Choice
 and Notable Book of the Year



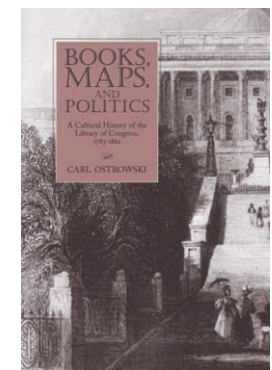
Literary Journalism on Trial
 Winner of the AEJMC Award for the Best Book on Journalism and Mass Communication History



The American College Town
 Winner of the J. B. Jackson Prize from the Association of American Geographers



Captors and Captives
 Winner of the New England Historical Association Book Award



Books, Maps, and Politics
 Winner of the Eliza Atkins Gleason Book Award

New Laboratory Science Building



NLSB Summary

- Total Cost \$144 million
- Construction \$109 million
- Cost/GSF \$354
- GSF: 308,000
- NSF: 177,605 (58% Eff)
 - Labs 42,628
 - Platform 19,289
 - Office 19,015
 - Support 2,707
 - Vivarium 13,208
 - Shell 86,934
- Population 856 people
- Design: 5/09-7/10
- Build: 3/10-5/12
- Design: Wilson Architects
- CE: Nitsch Engineering
- Builder: Whiting-Turner
- Method: CM-at-Risk

Designed
for
Collaborations

Engagement

National Centers
Regional
Campus



Green Holyoke High Performance Computing project

- \$70-80M facility
- initial planning stage
 - concept definition, requirements
 - facility options
 - research, education
- current planning stage
 - detailed design, organization financing

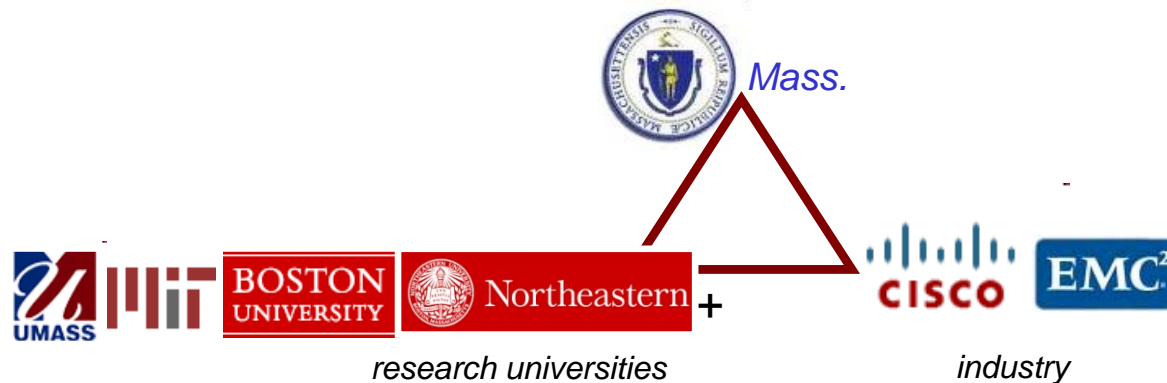


Looking forward:

- capital financing to achieve \$80M+ goal
- finalize technical req., initial design
- complete site selection
- innovation district planning
- collaborative research, education activities

Green Holyoke High Performance Computing project

- **world-class “green” HPC center**
 - ❖ computation as 3rd leg of science
 - ❖ required 21st century research infrastructure
 - ❖ green: power, facility & operations, research
- **historic 3-way collaboration:**



- ❖ strengthening MA leadership in computing, application in life sciences, clean energy, climate
- **catalyst:** Holyoke energy innovation district - economic, educational, workforce dev. benefits to Holyoke, western MA, state

Commonwealth Honors College Research

- 106 research grants to students in 95 Departments
- 523 archived manuscripts
- 557 honors degrees
- More than 80% of alumni attend graduate or professional school
- 453 students from 20 public institutions attended the *Statewide Undergraduate Research Conference*.
- Office of National Scholarship Advancement
 - 3 Fulbright, 1 Gates Cambridge, 1 Goldwater, 1 Marshall, 3 National Science Foundation

More Information – www.umass.edu/research

