WELCOME

President ANN WEAVER HART
November 2016
OVERVIEW

NEVER SETTLE
RESOURCING THE FUTURE

GREGG GOLDMAN
Senior Vice President for Business Affairs and Chief Financial Officer
FINANCIAL VIABILITY
PHOENIX BIOMEDICAL CAMPUS
DEFERRED MAINTENANCE AND BUILDING RENEWAL TIME BOMB
IF THE STATE MET THE RESIDENT STUDENT INVESTMENT GOAL BY FY2020

- The UA would receive an estimated additional $125M annually
- State support would represent 14% of projected total revenue sources
NOT ALL CASH BALANCES ARE ALIKE
34% of Balances are from Restricted Funds

REQUIRED BY CREDIT RATING AGENCIES
Moody’s Rating Aa2, S&P AA-

CASH FLOW TO MEET ON-GOING EXPENSES
$47M/payroll, $452M Remitted Tuition, $48M/month to bridge sponsored grant & contract reimbursement

RISK MITIGATION
Guaranteed Tuition, State Lottery Reduction, State Appropriation, Future Commitments, TRIF Revenue Sunset

MONTHLY DAYS CASH ON HAND AS OF JUNE 30TH

Target Range (75% - 125% Moody’s Median)
UA
FINANCIAL VIABILITY – DEBT PORTFOLIO

FY2016 TOTAL DEBT BY USE
- 71% Academic & Research
- 29% Auxiliary

FY2016 TOTAL DEBT BY FUND SOURCE
- 35% Tuition & General Purpose Funds
- 29% Auxiliary
- 36% State Appropriation/State Lottery

Significant retirement of debt by FY2021 and FY2025 provides future opportunities for reinvesting in Academic & Research infrastructure.
LAND-GRANT MISSION – AN EXAMPLE: COOPERATIVE EXTENSION
• Presence in every county of Arizona
• Facilities, operation & maintenance challenges due to location

MEDICAL COLLEGES – TWO IN TWO VERY DIFFERENT CITIES
• High-cost personnel, laboratories, facilities
• Complex contractual agreements with medical partners
• Patient clinical activities & facilities required

OWNERSHIP & MANAGEMENT OF AUXILIARY ACTIVITIES

OTHER FACTORS
• Decentralized budget model – RCM
• Large amount of sponsored research – cost reimbursement & multi-year contracts
• Special line item appropriations: Freedom Center, Arizona Geological Survey, Telemedicine, Clinical Rural Rotations, Liver Research, etc.
UNPRECEDENTED NUMBER OF CAMPUS-WIDE UA COLLABORATIONS

- **City of Phoenix** – land leases, masterplan & building development collaboration, site infrastructure
- **NAU** – HSEB & BPSB partnerships, program collaborations, NAU development projects managed by UA
- **ASU** – ABC1 partnership, synergistic developments north of UA/PBC, central plant collaborations
- **Banner Health** – multi-campus partnership, with new clinic collaboration at PBC
- **Dignity Health** – cancer care delivery partner at UA Cancer Center – parking provided through UA
- **Boyer Company** – P3 project with city for PBC garage – garage lease rates/terms negotiated by UA
- **NRG** – central plant & infrastructure planning & development collaborations
- **TGen** – program & shared use of TGen building
- **Multiple Planning, Design & Construction Teams** – diverse collaborations to build world-class, award-winning urban health care, educational & research facilities in the heart of downtown Phoenix
PHOENIX BIOMEDICAL CAMPUS

SUCCESS THROUGH COLLABORATION

AWARD-WINNING UA FACILITIES

HEALTH SCIENCES EDUCATION BUILDING

ARIZONA CANCER CENTER

BIOMEDICAL SCIENCES PARTNERSHIP BUILDING

PBC GARAGE
UA – PHOENIX INVESTMENT & ECONOMIC IMPACT

UA 15-YEAR INVESTMENT OF OVER $414M (1.3M GSF OF SPACE)

- $268M  UA SPEED Funds
- $ 86M  UA System Revenue Bonds
- $ 15M  Federal Grant Funding
- $ 17M  Charitable Contributions
- $ 20M  NAU & ASU Funding Contributions
- $  7M  Dept. or Auxiliary-Funded Investments
- $414M  Total UA PBC Investment

PLUS ONGOING UA P3 INVESTMENTS
Lease for three Historic Buildings
Garage Licensing for 418 Spaces

$.66M ALSO INVESTED IN PBC BY OTHERS
UA – Phoenix currently has over $1B annual economic impact on community

- Economic equivalent to two Super Bowls coming to Phoenix each year
- Employment growth of over 8,000 jobs added to community
- UA – Phoenix to have $3.1B annual economic impact in 10 years
UA – PHOENIX / PBC MASTERPLAN UPDATE

- 1.43M GSF currently on UA-designated part of campus
- Additional .75M GSF ($500M) in UA growth anticipated in next 10 years
- 2.2M GSF total development capacity for UA-designated part of campus
- Plus future development capacity of roughly 1.2M GSF on Mercado block
- Recently purchased PBC bldg. 4 to be developed for UA office educational use
- UA – Banner clinic collaboration in discussion for site adjacent to PBC campus
DEFERRED MAINTENANCE AND BUILDING RENEWAL TIME BOMB
• Cracked concrete floors
• Antiquated cold rooms
• Envelope leakage
• Asbestos fireproofing
• Deteriorated insulation
• Duct leakage
• Constant volume air handlers
• Inefficient lab exhaust
• No energy recovery
• Low air changes
• Dirty ductwork
• Interior duct lining
• Exterior standing water
• Grading/site drainage issues
• Piping dead legs
• Industrial Hygienist results
Deferred Maintenance 2005 – 2006 $61,999,581
Deferred Maintenance 2015 – 2016 $312,360,564
Deferred Maintenance 2025 – 2026 $1,070,000,000
• Summer of 2016 – Electrical fire at UAHS affected emergency power and chilled water that resulted in the relocation of patients for a 24-hour period.

• Electrical equipment needed to be secured through eBay due to unavailability of the 1960s fuses.
LIFE CYCLES AND PERIODIC RENEWAL COSTS OF BUILDING SYSTEMS

IN FRONT OF THE WALLS 23%

BEHIND THE WALLS 77%

YEAR

YEAR

$/SF

Roofing - 25 yr
Exterior - 30yr
Elevators - 25yr
Fire sprinklers - 40yr
Fire alarm - 25yr
Built in equip - 25yr
Interior finishes - 15yr
Painting - 15yr

HVAC controls - 20yr
HVAC equipment - 30yr
HVAC distribution - 50yr
Electrical equipment - 25yr
Electrical distribution - 50yr
Plumbing fixtures - 30yr
Plumbing piping - 50yr
• In the absence of renewal, lab buildings from the 1950s and 1960s are becoming high-risk
• Buildings from more recent decades will soon become the focus of tomorrow
• Building renewal “inside the walls” represents the most urgent and highest renewal needs and costs
FY17 SINGLE-YEAR NEED BY BUILDING SYSTEM

FY17 Single-Year Need

| FY16 Need | HVAC | Interior Shell | Plumbing | Exterior Shell | Safety/Code | Electrical | Cooling | Heating | Grounds | Mechanical |
|-----------|------|----------------|---------|----------------|-------------|------------|---------|---------|---------|------------|-------------|
| $50       | $2   | $10            | $29     | $4             | $2          | $2         | $2      | $2      | $2      | $2         |
CAMPUS-WIDE FUNDING NEEDS

BUILDING PORTFOLIOS

- Campus systems have different renewal needs
- Labs and research buildings often have highest needs
INDOOR HEALTH ISSUES

The effect of building health on the humans and human systems housed within is not insignificant.

Emerging research suggests long term exposure to very low concentrations of certain molds, allergens and other airborne contaminants may lead to sensitization, manifested in a broad spectrum of symptoms.

Occupants spend up to one third of their lives within the indoor environment.

Many of the symptoms associated with indoor air quality directly affect concentration and productivity.

Long term effects of temperature, humidity, pressure, noise, vibration, particulates and airborne contaminants may have direct and indirect consequences on individual health.

Buildings are communities where the knowledge, perception and concern of individuals becomes a part of the collective experience.

Indirect effects of indoor building health include recruitment, retention, productivity, and culture.
SEVEN HIGH-RISK BUILDINGS

- Forbes
  - 1915
- Steward Observatory
  - 1953
- Harshbarger/Mines and Metallurgy
  - 1958
- Shantz
  - 1962
- Biological Sciences East
  - 1958
- Biological Sciences West
  - 1967
- College of Medicine
  - 1968
RISK AND PRODUCTIVITY IN THE ABSENCE OF DEFERRED MAINTENANCE

YEAR

PRODUCTIVITY

RISK

HEALTH
DISRUPTION
RELIABILITY
CONTROL
RECRUITMENT
RETENTION
PRODUCTIVITY
CULTURE

[Graph showing the relationship between risk and productivity over time, with arrows indicating increasing risk and decreasing productivity.]
CAMPUS BUILDINGS BY DECADE
Note: Map background shows an illustrative build-out concept of campus development (the Comprehensive Campus Plan-ABOR 2030).

Facility Code Index is the deferred maintenance dollars divided by the total building replacement cost. These percentages are based on the most current available data.
DISCUSSION
RELENTLESSLY FUTURE-FOCUSED

MELISSA VITO EdD
Senior Vice President for Student Affairs & Enrollment Management and Senior Vice Provost for Academic Initiatives & Student Success
RELENTLESSLY FUTURE-FOCUSED

• Redefined “engaged learning” to distinguish a UA degree as the new standard of educational excellence for students, faculty, and employers

• Educational liberty for every deserving student who seeks a UA degree

• Precision data and analytics that maximize student success and potential

• A profound reinvention of the “traditional” campus
**REIMAGINING ENGAGEMENT**

- The new national model
- Complete redefinition of “engagement”
  - Innovation driver in learning and teaching
- Embedding corporate partners into the learning experience
- Idea to reality in three years
<table>
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<tr>
<th>Rank</th>
<th>Description</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>#1</td>
<td>Most engaged university in Arizona</td>
<td>Wall Street Journal</td>
</tr>
<tr>
<td>#6</td>
<td>Most engaged university in the West</td>
<td>Wall Street Journal</td>
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<td></td>
<td>92% Employers who rate UA grads with skills needed to succeed on the job</td>
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<tr>
<td>89%</td>
<td>Employers who rate quality of UA grads as exceeding peers</td>
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<tr>
<td>450+</td>
<td>Engaged learning experiences available</td>
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<tr>
<td>5000+</td>
<td>Engaged learning transcript notations awarded</td>
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SEAMLESS ACCESS
SEAMLESS ACCESS TO A WORLD-CLASS EDUCATION

FRESHMAN  TRANSFER  ONLINE

STUDENT AFFAIRS & ENROLLMENT MANAGEMENT ACADEMIC INITIATIVES & STUDENT SUCCESS

DISTANCE/INTERNATIONAL  DISTANCE/STATEWIDE
SEAMLESS ACCESS TO A WORLD-CLASS EDUCATION

FRESHMAN

- On track to meet 2025 goals
- A reimagined pipeline – the first in Arizona to:
  - Offer micro-scholarships to financially incentivize leadership and reward academic excellence
  - Embed **UA counselors** in local high schools to remove barriers to access
  - Develop a suite of gap experiences leveraging local and international opportunities
TRANSFER

- On track to meet 2025 goals
- 370 statewide pathways, up from 33 since 2011-2012
  - Signed agreements with every AZ Community College
- Deep integration with UA Online
SEAMLESS ACCESS TO A WORLD-CLASS EDUCATION

ONLINE

• Ahead of 2025 goals
• World-class academic quality, research, and engagement
• Unique online models
  • UA Online General Education Academy
  • UA Online Science Academy, 2017
    • World-renowned lab sciences and STEM fields
• Broad corporate partnerships
DISTANCE/STATEWIDE

UA SOUTH:
• First ever deep analysis of branch campus and surrounding community
  • Hispanic Serving Institution (HSI)
  • Bachelor of Applied Science
  • Harnessing market-driven opportunities
  • Unique regional partners
  • Cyber Operations program, launched 2016

YUMA:
• Yuma strategic opportunities
  • 300+% growth by 2024
SEAMLESS ACCESS TO A WORLD-CLASS EDUCATION

DISTANCE/INTERNATIONAL

• First-of-its-kind model

• 20 micro-campuses by 2020
  • 3 agreements since May
  • In discussions with 50+ institutions

• New opportunities for student exchange, collaboration, and research

• Reorganization includes international student recruitment
USING BIG DATA TO MAXIMIZE STUDENT SUCCESS

HIGH SCHOOL GPA
SAT/ACT TEST SCORES
HIGH SCHOOL RIGOR
USING BIG DATA TO MAXIMIZE STUDENT SUCCESS
• **Living, breathing data**
  - Dynamic and developmental

• Finding new and unexpected predictors for student success

• **Real-time** retention and intervention programs
FORWARD THINKING
FORWARD THINKING

• Pushing data’s limits to inform retention strategies

• The District: red brick is the new building block of success

• Scanning the environment, focusing on the whole student
SHAPING OUR ACADEMIC FUTURE

ANDREW C. COMRIE PhD
Senior Vice President for Academic Affairs & Provost
DEFINING THE NEXT 10+ YEARS

• A Distinctive Student Experience

• Faculty Innovation: Knowledge Frontiers

• Data-Informed Business Decision Models
RE-ENVISIONING HONORS TASK FORCE

• Look beyond solely academic achievement
• Creativity, collaboration, group problem-solving
• Students address service and creative engagement, technical challenges in industry, partnerships within communities
• A “maker” culture, with curricular innovation
• Highly effective environment for world-class teaching, learning, and career preparation
A DISTINCTIVE STUDENT EXPERIENCE

- Developing a road map
  - Timeline
- Dean succession
- Financial plan & fundraising
- Building plan
A DISTINCTIVE STUDENT EXPERIENCE

- Active learning instruction
  - Faculty Learning Communities
- Student learning initiatives
  - E.g., SAIL fellows
  - HLC quality model initiative
- Collaborative learning spaces
  - Classroom conversions
- CUES
  - A new Center for University Education Scholarship
    - $3 million anonymous gift
- Support: AAU, NSF
- Recognition: ACUE, trade publications

THE LEARNING REVOLUTION
FACULTY INNOVATION: KNOWLEDGE FRONTIERS
STRATEGIC CLUSTER HIRING INITIATIVE

STRATEGIC OBJECTIVE:

Lead in existing and emerging strengths that align with funding and scholarly opportunities

- Seven clusters
  - Technology Enhanced Language Learning
  - Computational Media
  - Space Situational Awareness
  - Earth Dynamics Observatory
  - Ecosystem Genomics
  - Imaging Excellence
  - Big Data

- ~30 new interdisciplinary hires

- Augment four Health Sciences focal areas:
  - Precision Health, Population Health, Health Disparities, Neuroscience

- TRIF investment to leverage
  - ~20 additional hires
    - Security, Health, Space/Optics, Water/Environment
LAURA MEREDITH

- Ecosystem Genomics cluster
- Soil scientist, recruited from Stanford
- How soil microbes influence the atmosphere we breathe and survive in
JOSEPH FAR BROOK

- Computational Media cluster
- Digital Artist, recruited from Worcester Polytechnic Institute
- Invented a completely new art medium, lineographs on electronic ink screens
- Screen emits no light and is entirely reflective, mimicking the aesthetic of an ink drawing, except with movement
Responsibility Centered Management (RCM)

- Fundamental restructuring of entire budget
- Manage effectively and efficiently through a “market-based” business model
- Directly tied to performance and cost containment
- Incentivizes entrepreneurship
RCM POSITIVE MACRO INDICATORS:

• Increased college reserves for long-range investment

• Enabled a raise program for faculty and staff

• Has driven entrepreneurial new degree programs through strategic investments

Philanthropy for Academic Achievement

• Double college fundraising in 5-8 years

• Complete reorganization of reporting structures

• Emphasis on coordinated goals, metrics, and key performance indicators

• Specific initiatives
  • E.g., Eminent scholars endowment matching program
CREATING TOMORROW’S INNOVATIONS TODAY

KIMBERLY ANDREWS ESPY PhD
Senior Vice President for Research
“Built-to-last” foundational infrastructure that speeds discovery, knowledge, and application

Visionary, signature research that tackles the world’s grand challenges

Seamless innovation partnerships that drive benefit to the economy in Arizona and beyond
• UA has 75% of the research space of our peer mean

• Significant investments in new buildings

• Substantial need for modernized research space

• Strong ROI of Research Infrastructure I
• "$13M investment in large-scale instrumentation"

• "Coalesced existing distributed capacities into core facilities"

• "Deliver upgraded, professional services with sustainable business model"

• "Hubs for interdisciplinary collaboration & industry engagement"
Reorganization to Enable Big Ideas:

- Research Development Services
- Tech Launch Arizona
- Clinical Research Services
- Strategic Business Initiatives
- Arts, Culture and Heritage
- Innovation
- Interdisciplinary Philanthropy
- Global Research Alliances

“Imbuing culture of entrepreneurial research development for all funding sources”
RESULTS

NUMBER OF R&D PROPOSALS

2621 FY13

2979 FY16

+14%

NUMBER OF CROSS COLLEGE R&D AWARDS

134 FY13

168 FY16

+25%

MORE FACULTY WINNING EXTERNALLY FUNDED AWARDS

DISTINGUISHED EARLY CAREER Awardees

Energy

NIH

NSF

NIH

NSF

NIH

NSF

Air Force

NIH

Energy

Navy
VISIONARY SIGNATURE RESEARCH

UA student, Lujendra Ojha, discovered water on Mars
Institutes and Centers

- Arizona Institute for Energy Solutions
- Biosphere 2
- Center for Applied Genetics & Genomic Medicine
- Center for Disparities in Diabetes, Obesity & Metabolism
- Center for Population Science & Discovery
- D7: Data Science Institute @ Arizona
- Evelyn F. McKnight Brain Institute
- Institute of the Environment
- Transportation Research Institute
- Arizona Institute for Clinical & Translational Science
- Bio5
- Center for Biomedical Informatics & Biostatistics
- Center for Elimination of Border Health Disparities
- Center for Innovations in Brain Science
- Confluence Center for Creative Inquiry
- Defense and Security Research Institute
- Institute for LGBT Studies
- Udall Center for Studies in Public Policy
- Water and Energy Sustainable Technology Center
- UA Cancer Center

“...tackling big R&D questions, delivering better answers”
VISIONARY SIGNATURE RESEARCH

$7M NIH grant awarded to the UA College of Medicine -Tucson

Internationally renowned AFRL space lead joins UA to launch Space-Defense Initiative

UA study of devastating lung disorders in the critically ill receives $11.4M boost

UA Cancer Center retains prestigious NCI Comprehensive Status with $17.6M award

UA gets $10.3M grant for Alzheimer’s Disease research on women

UA, Banner Health receive $43M historic funding for landmark Precision Medicine Initiative Cohort Program

Smithsonian Institute/ Harvard NASA Goddard researcher joins UA’s LPL

Princeton researcher, NSF awardee joins UA Geosciences

Noted Atmospheric researcher brings extensive grant portfolio to UA

U-Minnesota expert on remote sensing joins UA Earth Dynamics Observatory team
Precision Medicine award drives genomics, informatics research strengths into clinical treatment

- UA-Banner Partnership
- Integrates essential health data, biological specimens with “Big Data” methods
- Industry and provider network partners
- Personalized treatments based on each patient’s individual needs
  - based on disease characteristics, genetics, lifestyle, and environment

“Creating next-generation medical care”

AWARDED

$43M / 5 YEARS
Largest NIH peer-reviewed grant in Arizona history

Banner University Medicine
National Institutes of Health
The University of Arizona’s **Defense and Security Research Institute** is delivering mutually beneficial partnerships between the University of Arizona, industry, and the government, and is providing unique solutions to complex defense and security problems by leveraging the University’s research excellence.
Research future looks bright
UA student working on a holographic display project for Honeywell.

SEAMLESS INNOVATION PARTNERSHIPS
AIM PHOTONICS
National Network Manufacturing Initiative
• UA leads science team
• $600M+ in federal, industry, and state funding to advance US leadership in integrated circuits
• Training students for industry careers

“Revolutionizing internet communication by using light to move information faster”
SEAMLESS INNOVATION PARTNERSHIPS

Innovation @ UArizona:

“Innovation and Economic Prosperity University” designation by APLU

NSF-Funded I-Corps Site

US News “Most Innovative Schools”

Reuters 100: World’s Most Innovative Universities

“Preparing students for their futures”
**RESULTS**

**INVENTION DISCLOSURES**

- 2013: 144
- 2016: 250

**LICENSES & OPTIONS**

- 2013: 48
- 2016: 95

**STARTUP COMPANIES**

- 2013: 3
- 2016: 14

**Tech Launch Arizona Exceeded ABOR Research Commercialization Targets**

Logos of various startup companies are also shown.
GROUNDBREAKING DISCOVERIES.
COLLABORATIVE SPIRIT.
REAL-WORLD IMPACT.

The University of Arizona’s ecosystem of innovation is moving today’s groundbreaking discoveries into tomorrow’s solutions.