

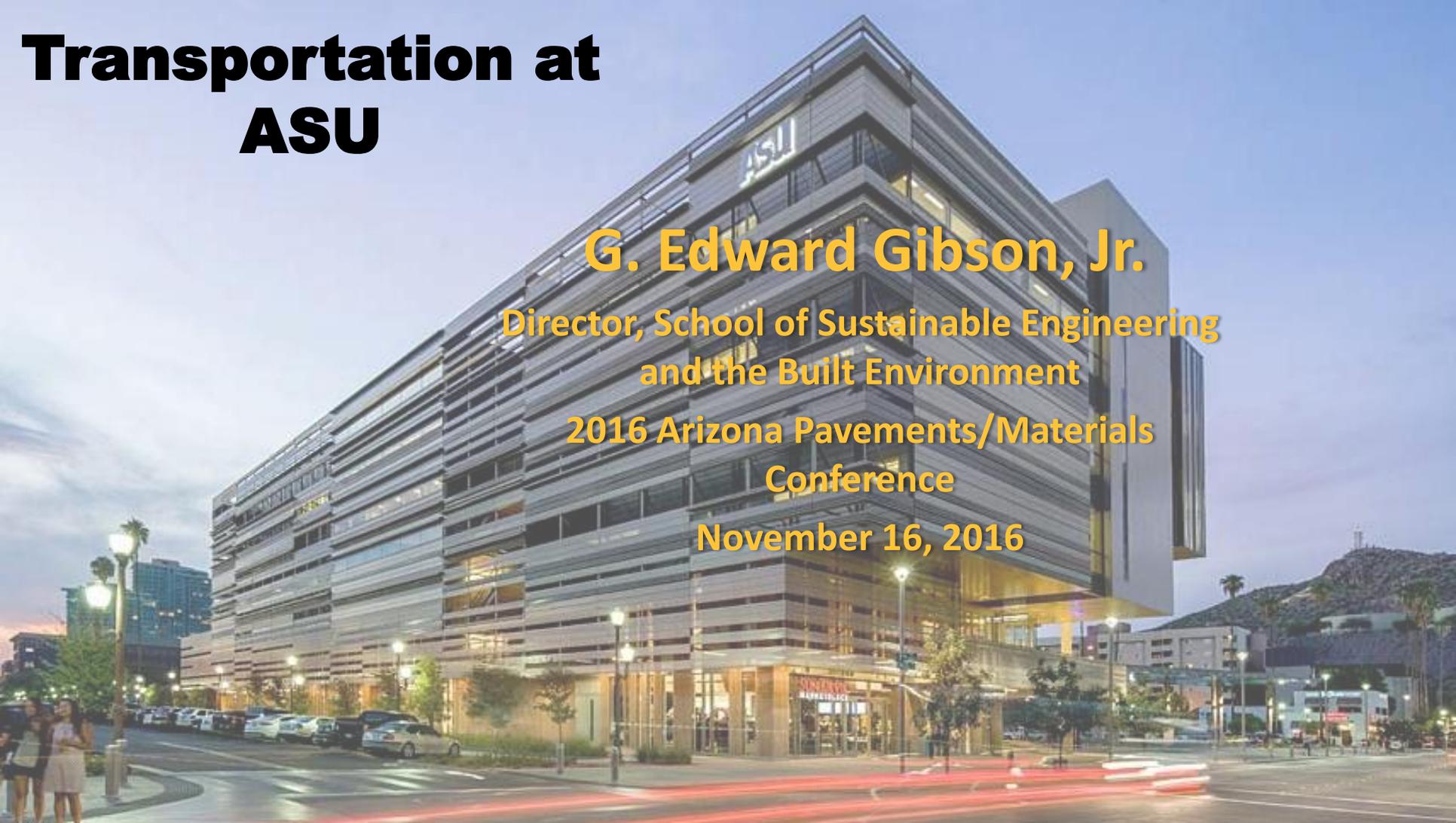
Transportation at ASU

G. Edward Gibson, Jr.

**Director, School of Sustainable Engineering
and the Built Environment**

**2016 Arizona Pavements/Materials
Conference**

November 16, 2016



Welcome!



ASU is a comprehensive public research university, measured not by whom we exclude, but rather by whom we include and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.

new american university
ASU's design aspirations

Leverage Our Place

Transform Society

Value Entrepreneurship

Conduct Use-Inspired Research

Enable Student Success

Fuse Intellectual Disciplines

Be Socially Embedded

Engage Globally

#1 in innovation

Two years in row, U.S. News and World Report





We build engineers

School of **ARTS, MEDIA AND ENGINEERING**
Herberger Institute for Design and the Arts

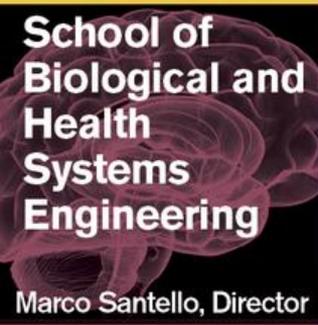
School of **EARTH AND SPACE EXPLORATION**
College of Liberal Arts and Sciences

School for the **FUTURE OF INNOVATION IN SOCIETY**

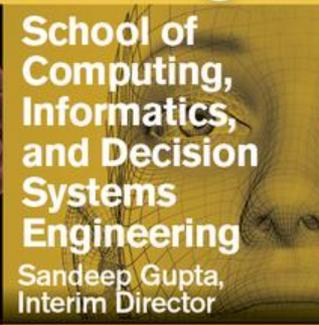
School of **SUSTAINABILITY**
The **BIODESIGN INSTITUTE**

Julie Ann Wrigley **GLOBAL INSTITUTE OF SUSTAINABILITY**
GLOBAL SECURITY INITIATIVE

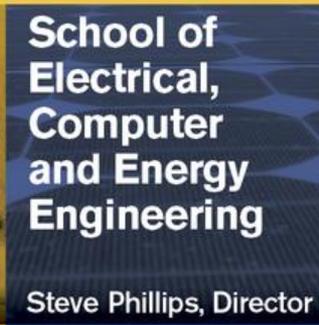
We are transcending the traditional.



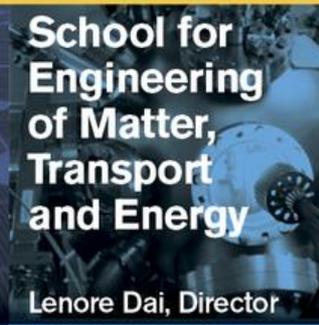
School of Biological and Health Systems Engineering
Marco Santello, Director



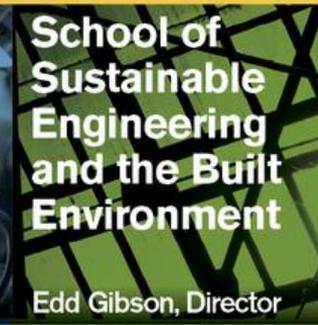
School of Computing, Informatics, and Decision Systems Engineering
Sandeep Gupta, Interim Director



School of Electrical, Computer and Energy Engineering
Steve Phillips, Director



School for Engineering of Matter, Transport and Energy
Lenore Dai, Director



School of Sustainable Engineering and the Built Environment
Edd Gibson, Director



The Polytechnic School
Ann McKenna, Director

1,009 students
843 undergraduate
166 graduate

5,675 students
4,341 undergraduate
1,331 graduate

3,002 students
2,118 undergraduate
884 graduate

4,026 students
3,335 undergraduate
691 graduate

1,702 students
1,285 undergraduate
417 graduate

4,556 students
4,268 undergraduate
288 graduate

Biomedical Engineering
Biological Design

Computer Engineering
Computer Science
Computer Systems Engineering
Engineering Management
Industrial Engineering
Informatics
Software Engineering

Electrical Engineering
Computer Engineering

Aerospace Engineering
Chemical Engineering
Materials Science and Engineering
Mechanical Engineering
Solar Energy Engineering and Commercialization

Civil, Environmental and Sustainable Engineering
Construction Engineering
Construction Management
Sustainable Engineering

Aviation Engineering
Environmental and Resource Management
Graphic Information Technology
Human Systems Engineering
Information Technology
Manufacturing Engineering
Technological Entrepreneurship and Management

Fall 2016 Enrollment (21st day)



**Focused on
Student Success**

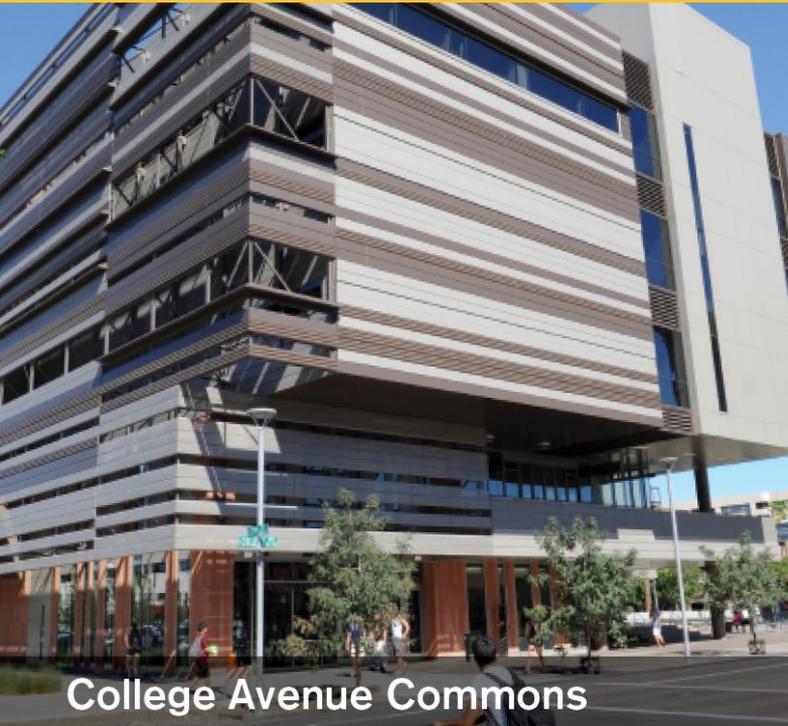
20,366 fall 2016 enrollment

3,536 degrees granted 2015-2016

2,843 fall 2016 first-time freshmen

30% of Barrett, the Honors College students are in the Fulton Schools

use-inspired research

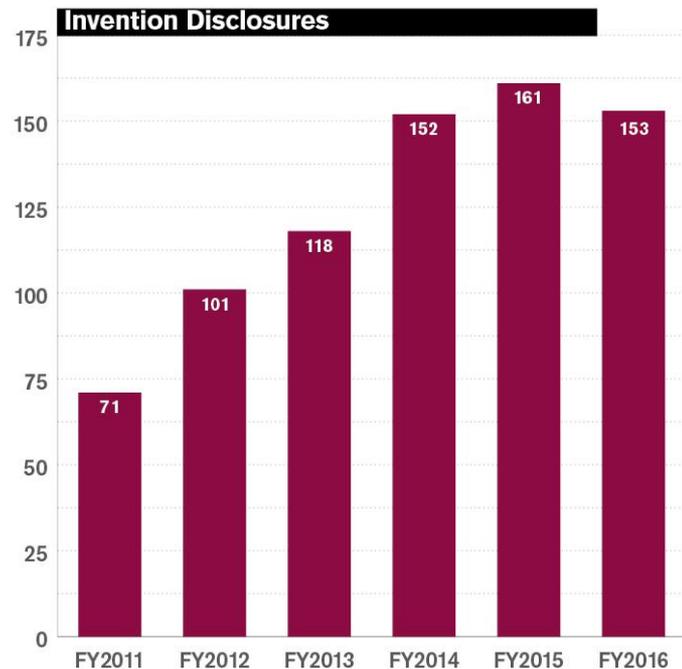


\$98.3M
research awards

\$99.4M ^{FY2016}
research expenditures

1,000+
students conducting
research

7 startups
26 patents
22 major
agreements



New facilities 3-D Print Lab, New Tutoring Center, Generator Labs, College Avenue Commons, New residential community under construction

school of
**sustainable engineering
and the built environment**



**school of sustainable
engineering and the
built environment**



**del e. webb school of
construction**

civil, **environmental
and sustainable
engineering**

**construction
engineering**

**environmental
engineering (fall 2017)**



our vision

To be an acknowledged, world-wide innovator in producing leaders, pioneering solutions, and new knowledge for the betterment of human-kind.

We will be the leading source of Civil, Sustainable, Environmental and Construction engineers and managers in the U.S. Southwest.



our mission

To educate students and develop new knowledge and understanding in order to advance engineering and construction processes to achieve sustainability in the built environment.

We do this by focusing on five thematic thrust areas:

- Sustainability
- Energy
- Health
- Security
- Education

data snapshot

enrollment

1702

total enrollment

1285

undergraduate students

417

graduate students

278 M.S./139 Ph.D.

faculty

47

tenured and tenure-track faculty

6 lecturers

8 research faculty

3 professor of practice

student profile

25/1157 ACT/SAT

11% Barrett Honors students

21% female

22% international

31% underrepresented minority

69 Accelerated Bachelor's plus Master's Program students (4+ 1)

Scholars: Udall, Fulbright, Eisenhower

Global Engagement

Engineers Without Borders, Bridges to Prosperity, US/Mexico Border Water Training Program

22% of FTF first generation

Ranking of programs in US

civil engineering (#34 USNWR-grad)

construction management (top 3)

construction engineering (top 5)

environmental engineering (#21 USNWR-grad)

enrollment

- Overall enrollment for AY 2016 has **increased 4 percent to 1702** over AY 2015
- Undergraduate graduate student enrollment **increased 5.3 percent** to 1285 students

research awards

- for AY 2015 were at \$20.28 million which is a **130 percent increase** over AY 2014

accreditation

- CEE and CNE **accredited by ABET** summer 2016
- CM **accredited by ACCE** summer 2015

research expenditures

- for AY 2015 were at \$15.03 million, which is a **19.3 percent increase** over AY 2014

university transportation center (UTC) project (cross-Schools)

- first USDOT UTC project at ASU
- subcontracted to Univ. of Maryland, UTC title: **“National Center for Strategic Transportation Policies, Investments, and Decisions”**
- dates of performance: 1/1/14 to 6/30/17
- expenditure total (ASU): \$825K
- faculty involved:
 - Kamil Kaloush (lead PI)
 - Xuesong Zhou
 - Pitu Mirchandani
 - Mounir El Asmar
 - Shane Underwood
 - Mike Chester
 - Yingyan Lou

other ASU transportation related projects (SEBE)

- **two funded ADOT projects (i.e., asphalt specifications and ultra-high performance concrete)**
- **MCDOT training program**
- **MAG travel demand**
- **negotiations underway for projects in recycled pavements and reuse of waste streams in infrastructure**

university transportation center (UTC) activity, current round (cross-University)

- 13 ASU proposals currently pending
- two collaborative (one with UA, one with UA and NAU (cost share ADOT))
- topics ranged from mega regions (planning) to infrastructure, focused on bridges and pavement
- collaborated with a number of institutions (i.e., UC-Berkeley, UT-Austin, Texas A&M, Maryland, Michigan State, Maryland, Kansas State, Iowa State, Nebraska, Nevada Reno, Georgia Tech, etc.)

NSF Engineering Research Center Projects Awarded (SSEBE)

- Ed Kavazanjian and his team, leading a project entitled: **“NSF Engineering Research Center for *Bio-Mediated and Bio-Inspired Geotechnics*”**
 - \$18.5 million over five years
 - Partners: ASU, UC-Davis, NMSU, Ga Tech
 - <https://engineering.asu.edu/cbbg/>

- Paul Westerhoff and his team, subcontracting with a Rice-led initiative entitled: **“NSF Engineering Research Center for *Off-Grid Nanotechnology Enabled Water Treatment (NEWT)*”**
 - ~\$3.2 million over five years
 - Partners: Rice, ASU, Yale, UTEP
 - <http://www.newtcenter.org>

transportation materials and systems expertise at asu

transportation systems:

Ram Pendyala*, Professor

Yingyan Lou*, Assistant Professor

Xuesong Zhou*, Associate Professor

Mikhail Chester*, Assistant Professor

construction, project planning and delivery:

G. Edward Gibson, Jr., Professor

Sam Ariaratnam, Professor

Mounir El Asmar*, Assistant Professor

Pingbo Tang*, Assistant Professor

David Grau*, Assistant Professor

Al Chasey, Associate Professor

Wylie Bearup*, Professor of Practice

structures and materials:

Kamil Kaloush, Associate Professor

Ed Kavazanjian, Professor

Shane Underwood*, Assistant Professor

Mike Mamlouk, Professor

Barzin Mobasher, Professor

Narayanan Neithelath*, Associate Professor

Claudia Zapata, Assistant Professor

Sandra Houston, Professor

Matt Witczak, Professor Emeritus

Christian Hoover*, Assistant Professor

**Recent hires (within the past four years)*

<http://transportationstudies.asu.edu>

transportation materials and systems expertise at asu (cont'd)

logistics and simulation:

Pitu Mirchandani, Professor

J. Rene Villalobos, Associate Professor

Ron Askin, Professor

Arnold Maltz, Associate Professor

water and air quality:

James Anderson, Research Professor

Zhihua Wang*, Assistant Professor

Matt Fraser, Professor

Enrique Vivoni, Professor

planning:

Michael Kuby, Professor

Deborah Salon*, Assistant Professor

Alan Murray, Professor

Patricia Mariella, Director

David Hondula*, Assistant Professor

**Recent hires (within the past four years)*

<http://transportationstudies.asu.edu>

//istb2



//cavc



world-class facilities

//istb4



this conference's impact

- 13th ASU Pavements/Materials Conference
- 400+ participants
- Matt Witczak Faculty Endowment now is over \$35k
- funds will enable our faculty in this area discretionary funds to support pavement program and students
- knowledge shared will allow all of us to do a better job

Thank you!!

school of
**sustainable engineering
and the built environment**



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