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.**

ASU Arizona State University

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

IRA A. FULTON SCHOOLS OF
engineering
ARIZONA STATE UNIVERSITY
We build engineers

ASU IRA A. FULTON SCHOOLS OF engineering

ARIZONA STATE UNIVERSITY

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

1,009 students
843 undergraduate
166 graduate

- Biomedical Engineering
- Biological Design

School of Computing, Informatics, and Decision Systems Engineering

Sandeep Gupta, Interim Director

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

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

School of Electrical, Computer and Energy Engineering

Steve Phillips, Director

3,002 students
2,118 undergraduate
884 graduate

- Electrical Engineering
- Computer Engineering

School for Engineering of Matter, Transport and Energy

Lenore Dai, Director

4,026 students
3,335 undergraduate
691 graduate

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

School of Sustainable Engineering and the Built Environment

Edd Gibson, Director

1,702 students
1,285 undergraduate
417 graduate

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

The Polytechnic School

Ann McKenna, Director

4,556 students
4,268 undergraduate
288 graduate

- 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)

6 interdisciplinary schools ▪ 23 undergraduate programs ▪ 39 graduate programs ▪ 2 campuses+online

engineering.asu.edu/factbook

Focused on Student Success

20,366 fall 2016 enrollment

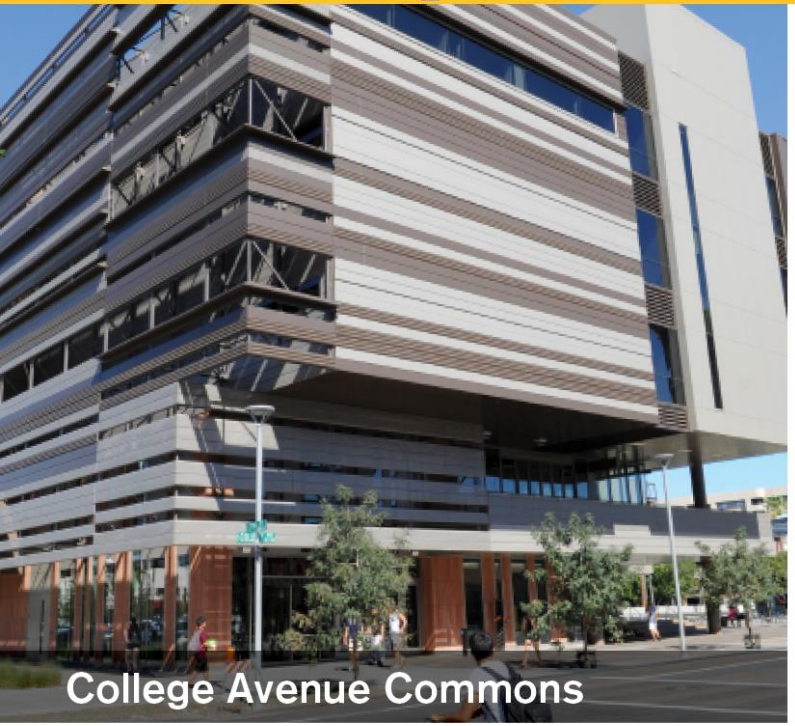
3,536 degrees granted 2015-2016

2,843 fall 2016 first-time freshmen

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

23 undergraduate programs ▪ 39 graduate programs ▪ Two campuses plus online

use-inspired research


College Avenue Commons

$98.3M **research awards**

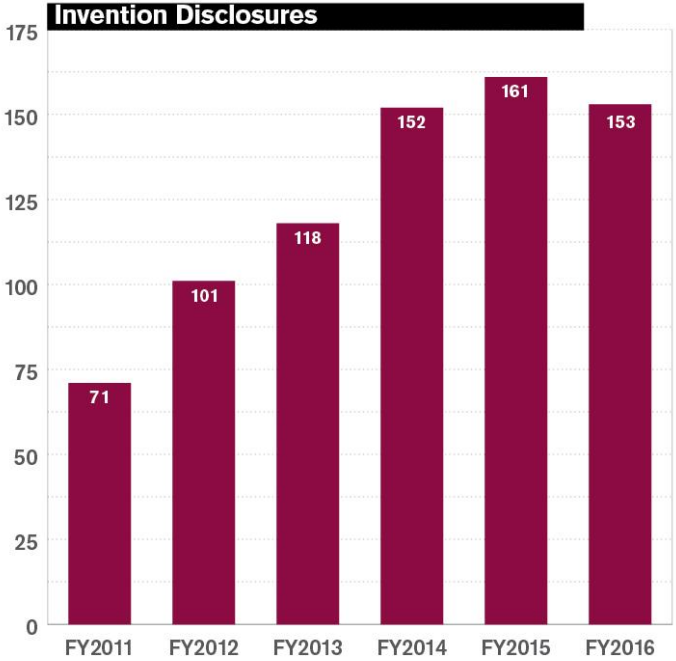
$99.4M **research expenditures** FY2016

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 2015

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
GRADUATE
AHEAD
http://transportationstudies.asu.edu