

2013 HIGHLIGHTS

CITY OF BIRMINGHAM PARTNERS WITH THE UAB SUSTAINABLE SMART CITIES RESEARCH CENTER (SSC) FOR A HEALTHIER, SMARTER CITY



The City of Birmingham and UAB Sustainable Smart Cities Research Center took a major step toward smarter, healthier and more sustainable development with the Feb. 27, 2013, signing of a memorandum of understanding (MOU) to partner on projects such as energy efficiency and city planning that accounts for a more “livable” city.

“Everyone wants to have a smart city,” Birmingham Mayor William Bell said at the signing ceremony in UAB’s Alumni House. “We want to create a green city with bike paths and proper sidewalks. We are beginning that process tonight.”

UAB President Ray L. Watts said, “There is no question that the success and vitality of UAB is inextricably linked to the success and vitality of Birmingham. UAB has a role to play in community service, and we want to make sure that the breadth and depth of UAB’s expertise is brought to bear to help our community.”

Watts described a healthier city as one that is also economically stronger. “At UAB, we want to drive economic development for our community,” Watts said. “We would like to see a knowledge-based and technology-based economy in Birmingham and across Alabama.”

A group of 50 leaders attended the signing ceremony. Hugh Barton, M.Phil., emeritus professor of Planning, Health and Sustainability at the University of West England in Bristol, United Kingdom, and a special advisor to the World Health Organization, presented a keynote speech about creating neighborhoods for health and health equity.

[The partnership agreement we signed with the City of Birmingham to work together for a healthier citizenry will ramp up work on projects such as bike paths and sidewalks and greenways across the metro area. Key players from UAB in this effort are our Minority Health and Health Disparities Research Center and our Sustainable Cities Research Center.](#)

*Ray Watts, MD
UAB President*

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SYMPOSIA

THE BUILT ENVIRONMENT: HEALTH AND LIVABILITY OF CITIES – PRE-CONFERENCE EVENT FEBRUARY 27, 2013



The UAB SSC in collaboration with the UAB Minority Health & Health Disparities Research Center (MHRC) hosted a conference by Dr. Hugh Barton, Professor of Planning, Health and Sustainability Director for Healthy Urban Environments Planning and Architecture (formerly with World Health Organization). He is an author of several books on urban planning, health and sustainability, among them 'Shaping Neighbourhoods, for local health and global sustainability'.

UAB SUSTAINABLE SMART CITIES SYMPOSIUM APRIL 3, 2013

The 2nd Annual UAB Sustainable Smart Cities Symposium: *Advancing the Science of Cities*, gathered over 200 participants who attended the one day conference. Inaugural remarks were delivered by The Honorable William Bell, Birmingham City Mayor, and Dr. Richard Marchese, UAB Vice President of Research and Economic Development.

Invited speakers from the US and the UK presented a comprehensive array of topics:

Sustainable Transportation and Downtown Revitalization

Catherine Ross, PhD - Director, Center for Quality Growth and Regional Development, Georgia Institute of Technology

Sustainable and Smart Urban Freight Systems

Jose Holguin-Veras, PhD - Director, Center of Excellence on Sustainable Urban Freight Systems, Rensselaer Polytechnic Institute

Towards Sustainable Smart Cities: The UK and US Experience

John Adlen - Director, Sustainable Futures Lab, Staffordshire University, United Kingdom

Resilient Cities, How Visionary Leaders are Creating Opportunities Through Innovation

Richard D. Michos - Global Vice President, Smarter Cities, IBM

Sustainability by Design

Wouter Schik, MA - Senior Landscape Architect BNT and Sustainability Specialist at ARCADIS, The Netherlands



The conference ended with a panel discussion moderated by Dr. Eric Jack, Dean UAB School of Business. In addition to the speakers, special guests to the panel included: Dr. J. Iwan Alexander, Dean UAB School of Engineering and Mrs. Cathy Sloss Jones, Sloss Real Estate.



CITY PARTNERSHIPS



IBM SMARTER CITIES CHALLENGE

In October 2013, in partnership with the UAB SSC, the City of Birmingham submitted an application to the *IBM Smarter Cities Challenge*.

The Smarter Cities Challenge contributes the skills and expertise of IBM's top talent to address critical issues facing cities around the world. This is done by putting teams on the ground for three weeks to work closely with city leaders and deliver recommendations on how to make the city smarter and more effective. Over the past 3 years, 100 cities have been selected to receive grants - contributions valued at over \$50 million to date.

The proposal submitted focuses on developing strategies to reverse community degradation, create new investment to stabilize and grow neighborhood property value by increasing access to fresh, healthy food.

The City of Birmingham has experienced a vast decline in population over the last several decades and needs to transition from a declining industrial city into one with stable and growing neighborhoods with access to quality goods and services. Birmingham, riding the boom of the steel industries, blossomed from its inception in 1880 to a city with a population of 340,000 in 1960. Since that time the City has lost 128,000 residents, a decline of 38%. As Birmingham's industries shuttered or relocated, the workforce became trapped in a spiral of disinvestment that dissolved their neighborhood fabric. These communities continue to face the interconnected health, environmental, education, crime, and economic challenges that come with that decline. Much of the City of Birmingham suffers from limited access to supermarkets, grocery stores, and affordable healthy food options: a food desert. The lack of quality food options leads to major health problems at every age level (particularly in the youth and elderly) for residents in Birmingham's blighted neighborhoods. According, PLACE MATTERS Jefferson County Report, 2013, "of the 151.9 square miles making up the city of Birmingham, 43 square miles are characterized as a **food desert**. A total of 88,409 people (23,657 children) in Birmingham live in these neighborhoods and 83 percent are black or Hispanic."

The winners will be announced in February 2014.

BIKE SHARE PROGRAM

The Bikeshare for Birmingham feasibility study group, lead by the Regional Planning Commission of Greater Birmingham, met with the UAB Sustainable Smart Cities Research Center to discuss collaboration and funding of this initiative.



RESEARCH

PILOT RESEARCH PROJECTS ON SUSTAINABLE SMART CITIES

In October 2013, the center announced its first pilot funding competition with the goal of fostering cross-disciplinary research that integrates health, socio-economic impacts, and infrastructure design. The purpose of this funding is to promote the development of innovative solutions for sustainable urbanization and contribute to the emerging Science of Cities. Key areas of funding included:

1. Green Building and Infrastructure Design
2. Information and Smart Technology
3. Sustainable Urban Development
4. Clean Energy (Efficiency, Renewable, Alternative)
5. Natural Resource and Carbon Management
6. Urban Health and Environmental Exposure

INTERNATIONAL RESEARCH COLLABORATION STAFFORDSHIRE UNIVERSITY IN THE UNITED KINGDOM



STAFFORDSHIRE UNIVERSITY

In April 2013, UAB SSC signed a Memorandum of Understanding (MoU) with Staffordshire University to work with its Regeneration Hub for Sustainable Futures LAB housed at the new £30 million Science and Technology Center. Under this agreement, UAB and Staffordshire University are collaborating on research and training programs and applying jointly to funding opportunities in Europe and the USA. The academic affiliation is opening cooperation with other parts of the world, extending UAB's global reach, strengthening its academic programs, and benefitting our entire community.

GLOBAL INNOVATION INITIATIVE

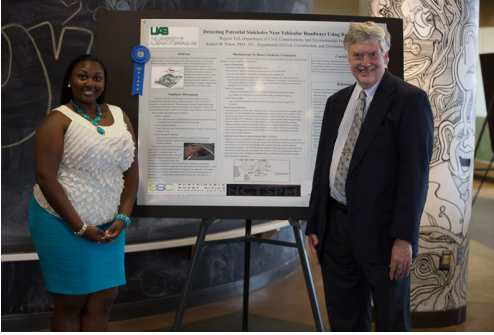
The UAB SSC, UAB MHRC and Staffordshire University are collaborating to secure funding from the Institute of International Education. In October 2013, the governments of the United States and the United Kingdom launched the Global Innovation Initiative, a new higher education grant competition created to strengthen higher education research partnerships between the U.S., the UK and selected countries. This initiative provides exciting grant opportunities for university consortia on topics of global significance in the fields of science, technology, engineering and mathematics (STEM) in the following four areas:

- Energy, climate change and the environment
- Agriculture, food security and water
- Public health and wellbeing
- Urbanization



INSTITUTE OF INTERNATIONAL EDUCATION

TRAINING



SUMMER ENRICHMENT PROGRAM 2013

In partnership with Alabama's Historically Black Colleges and Universities (HBCU's), The University of Alabama at Birmingham (Minority Health & Health Disparities Research Center, and the Sustainable Smart Cities Research Center) is sponsoring a summer enrichment program to increase the number of competent, well trained minority researchers and engineers working on transportation related issues.

The program seeks to provide intensive learning opportunities in civil engineering research and to increase enrollment in engineering school and transportation engineering related career choices.

The scholars selected for the National Center for Transportation System Productivity and Management (NCTSPM) Summer Enrichment Program are exposed to experts in civil engineering and transportation related topics, learn about engineering career options, take classes in scientific writing, work on research projects under the leadership of a faculty mentor, and develop a comprehensive plan to achieve their goals.

The goal of the NCTSPM Summer Enrichment Program is to increase the number of competent, well trained minority engineers, researchers, and transportation professionals working on transportation issues of importance to our region and the nation.

During the 2013 session, seven students attended the 4 week program at UAB campus and were mentored by School of Engineering faculty.

MASTER'S OF ENGINEERING IN SUSTAINABLE SMART CITIES

UAB SSC and UK's Staffordshire University created a new Master's of Engineering in Sustainable Smart Cities to be launched in FY 2015. This pioneer program is intended to give decision makers a broad background and conceptual knowledge to remain competitive in the marketplace. The courses will be taught online, by faculty from both universities. The following are the main topics:

1. Sustainable urban development for smart cities
2. Energy and natural resource management
3. Green infrastructure
4. Health and livability of cities
5. Big data and data analytics
6. Smart technologies

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SUSTAINABLE SMART CITIES YOUTH CHAMPIONS

We are pleased to announce the creation of the **Sustainable Smart Cities Youth Champions**, a program of the *Sustainable Smart Cities Research Center at the University of Alabama at Birmingham (UAB SSC)*.

The **Sustainable Smart Cities Youth Champions** will start in 2014 with middle school students (between the ages of 12-14) attending inner-city Birmingham City Schools.

Improving quality of life

Educating the youth about the responsible management of the natural resources improves the quality of life for present and future generations by increasing the possibilities to: breathe clean air, drink clean water, eat fresh foods and enjoy green and open spaces.

Building human capital

The **Sustainable Smart Cities Youth Champions** program provides inner-city youth with hands-on learning opportunities.

By teaching the importance and benefits of protecting the environment, at an early age, we are helping nurture a more responsible adult and a better community.

Through the **Sustainable Cities Youth Champions** program, children are exposed to new fields of knowledge as well as future career opportunities in the emerging *Science of Cities*.

Researchers estimate that by year 2050, 90 percent of Americans will live in cities that collectively will consume three-fourths of the world's energy.

The future of Birmingham and communities across the nation demands the sustainability of environmental, social, and economic urban resources. The success of this program relies on the collaboration of the public, private, and grassroots organizations.

Smart cities aren't just about technology. In fact the smartest cities are the ones that are beginning to focus on how they sustain themselves for the future.

Jeffrey Peel, Quadriga Consulting, UK

INTERNATIONAL EVENTS

2013 WORLD CONFERENCE SMART HEALTHY CITIES CAMPINAS – SAO PAULO, BRAZIL



The 18th World Conference of the Society for Design and Process Science (SDPS) held in Brazil on October 28-30, 2013, had speakers from Brazil, Chile, Japan, Malaysia, Sweden, The Netherlands, United Arab Emirates, the UK, and the USA.

UAB Keynote presentations included:

Our Energy Future: Meeting the needs of the 21st Century

Dr. J. Iwan Alexander (Dean UAB School of Engineering)

Sustainable Smart Cities Research Center

Dr. Fouad Fouad, Chair, Civil Construction and Environmental Engineering, and SSC Director.

From Health Disparities to Healthy Communities: Past and Future

Maria C. Norena, Associate Director for Strategy and Innovation, Minority Health & Health Disparities Research Center (MHRC) and Sustainable Smart Cities Research Center (SSC)

Industry University Collaboration for Transformative Innovation

Dr. Murat Tanik, Chair Department of Electrical and Computer Engineering.

The Annual SDPS conference is a premier forum of knowledge integration focused on human needs to promote excellence in transformative thinking and transdisciplinary research and education.



Opening ceremony with Brazilian government officers



Maria C. Norena (UAB), Dr. Iwan Alexander (UAB), Dr. Murat Tanik (UAB) Co-Founder of SDPS; Dr. Sang Suh (Texas A&M) SDPS President; Dr. Fuad Sobrinho (Brazil), SES President; Dr. Fouad Fouad (UAB); Dr. Hiroshi Yamaguchi (Japan); and Macarena Rau (Chile).



UAB SUSTAINABLE SMART CITIES RESEARCH CENTER MODEL



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ADVANCING THE SCIENCE OF CITIES

The Sustainable Smart Cities Research Center (SSC) at the University of Alabama at Birmingham (UAB) is an enabling platform for interdisciplinary collaboration to understand and transform the impact of urbanization at the scientific, economic, and human levels.

UAB’s contribution to sustainability derives from the university’s unique capabilities to generate new knowledge and cutting-edge science.

Through the Sustainable Smart Cities Research Center (SSC), UAB acts as an engine of innovation that can transform the community by developing smart technologies and information systems, better transportation models, green construction, renewable energy, and sustainable environment, which results in increased economic development, healthier workforce, and better quality of life for all. Such innovation-based growth will lead to societal transformation, and UAB is proud to be at the forefront of this process, leading the way to the future.

UAB THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
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