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The Sustainable Stanford Quarterly Newsletter

SUSTAINABLE STANFORD

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In This Issue

The rainy winter quarter was a creative time for our office. We are now working towards an annual series of six Be Cardinal Green resource efficiency and conservation campaigns that increase actionable awareness on topics in sustainability. Each campaign includes a goal and recognition scheme that aims to make sustainability an inescapable aspect of campus life. Whether it is a U.S. Green Building Council banquet meeting with Bay Area green building practitioners or a conversation with students from the CEE/ES 109 Greening Buildings and Behavior service learning class, we repeatedly hear ideas and requests for more behavioral sustainability opportunities on campus. How do we create opportunities for students to exercise their creativity and passion for campus sustainability? How do we promote and utilize all the existing and well-conceived programs that enable higher efficiency and more innovation in campus operations? How do we make sustainability engaging and a value-add so it further enriches the Stanford culture of innovation and progress? As we design solutions with these questions in mind, we also welcome your feedback. I hope many of these stories will inspire you to make the connection between sustainability as a core value, our actions on campus, and the many behavorial opportunities available. We hope you enjoy this issue of Cardinal Green.

Fahmida Ahmed, Office of Sustainability

RecycleMania Campaign Launched

Competition is underway! For the fifth consecutive year, Stanford is a participant in RecycleMania, a nationwide, eight-week competition aimed to minimize waste at colleges and universities. With an increased focus on education and individual recognition, Sustainable Stanford launched a campus-wide campaign to promote RecycleMania which runs from February 6th to April 4th, 2011. Waste audits reveal that approximately 20% of the material found in the university's trash dumpsters is actually recyclable, the goal during RecycleMania is to decrease that by at least half and improve Stanford's ranking against peer institutions!

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A weekly raffle recognizes Stanford Community menbers who did not throw any recyclable items into the trash. Please visit the RecycleMania campaign webpage for further details and the entry form. To learn more about RecycleMania 2011 and Stanford's recycling program, download a recording of the 30-minute webinar hosted by Sustainable Stanford.

Winter Closure Results and Prize Winners

As part of the "Turn off for Break" campaign, the performance goal for this year's winter closure was to increase energy and cost savings from 2009 by at least 10%. The campus exceeded that goal and achieved the following savings:

- 1.4 million kilowatt-hours of electricity (48% increase from 2009)
- 3.8 million pounds of steam (87% increase from 2009)
- $202,000 in operating costs (54% increase from 2009)
- 778 metric tons of CO2 emissions avoided (63% increase from 2009)

Recognition

Participation Winners

The campus made progress towards its goal of 75% participation (full and partial) during winter closure. This year, 101 buildings fully participated and 59 buildings partially participated. This combined rate of 67% represents a 3% increase from 2009. In addition, 23 buildings increased their participation levels. From the pool of participating buildings, three raffle winners were selected. Occupants of the winning buildings, Building 170, Braun Music Building, and Cordura Hall are scheduled to enjoy BBQ or Ice Cream Social celebrations.

Performance Improvement Champions

As nominated by program organizers, the following building champions encouraged increased individual engagement and expended exceptional effort to ensure the success of winter closure:

- Sweet Hall & Green Team (28% increase in electricity savings from 2009)
- Jay Cross, Facilities Engineer/Coordinator, for his work in Landau Economics (8% increase in electricity savings from 2009) and other H&S buildings
- Harold Modular & Jody Gallegos (4% increase in electricity savings from 2009)
- Kathleen Baldwin, Zone C Manager
- Jim Perrizo, Lead Process Control Instrumentation Technician

Bag It Movie & Panel Highlights the Perils of Single-Use Plastic

Stanford's chapter of the Coastal Society partnered with FLiCKS to screen, "Bag It: Is Your Life Too Plastic?" on January 26th, 2011. A discussion panel following the film featured speakers from the Marine Mammal Center, Stanford's Office of Sustainability, Save Our Shores, and the Stanford University Bookstore. The lively Q&A period included discussion of Stanford's waste reduction and diversion programs and the multitude of opportunities to educate the community on the issues surrounding single-use plastic.

Current RecycleMania Standings

At the end of Week 5 (3/7 - 3/13), Stanford is positioned to exceed the goals for RecycleMania. The university is currently ranked as follows:

Grand Champion	- 130th
Per Capita Classic	- 19th
Waste Minimization	- 183rd
Gorilla Prize	- 3rd
Paper	- 10th
Cardboard	- 14th
Bottles & Cans	- 13th
Food Service Organics	- 14th

For more details on the competition categories and to check out the rankings of Stanford's competitors, visit http://www.recyclemania.org/.

Sweet! VPUE Green Team Kicks-Off BLSP

Building Level Sustainability Program (BLSP) pilot projects completed in 14 buildings showed a sustained reduction in electricity consumption between 3% and 20% with an average simple payback period of less than 11 months. At present, there are 2 buildings with implementation underway, Sweet Hall and the Haas Center for Public Service, and 91 buildings that have been identified as future program candidates.

Green Team members (left to right): Justin Higinbotham, Karen Lee, and Dean Eyre pose outside Sweet Hall

Capitalizing on the momentum of excellent performance during Winter Closure, the Sweet Hall Green Team recently adopted a Green Action Menu and began formal BLSP implementation. Targeted conservation measures were selected based on an energy audit and responses to a building-wide occupant survey. Office of Sustainability Intern Frances Ellerbe, Class of 2012, will continue individual office visits this quarter to help with installation of Smart Strips, timers, and CFLs throughout Sweet Hall. In addition to energy efficiency, the Green Team plans to implement an office composting program and possibly offer an expanded bike share program.

To learn more about BLSP and how to initiate a project, please review the full program report available online.

Major Changes to Marguerite Shuttle Routes Reduce Emissions

By Lisa Kwiatkowski, Parking & Transportation Services

Stanford implemented major changes to its Marguerite shuttle routes on March 1st, 2011. These changes will conserve fuel, reduce emissions, and reduce operating costs with minimal changes in service levels. Additionally, extra time was built into the schedule to improve on-time performance of the shuttle system.

"These changes will eliminate more than 100,000 miles traveled annually by our bio-diesel and diesel-electric hybrid bus fleet," said Brodie Hamilton, director of Parking & Transportation Services. "The reduction in miles, which will significantly reduce emissions, fuel consumption, and maintenance, was accomplished by minimizing route redundancy and making the system more efficient."

The free Marguerite shuttle system continues to travel throughout campus and connects with regional transit, medical centers, and nearby shopping, dining, and entertainment. For a guide to some of the places where the Marguerite takes

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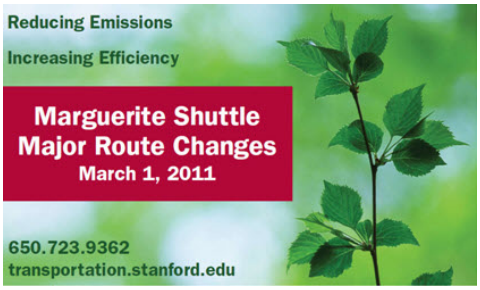

riders, refer to the Shopping, Dining, and Entertainment Directory on the Marguerite website.

For more information about the route changes, visit the Parking & Transportation Services website or send email to marguerite@stanford.edu.

Service Learning Course CEE/ES 109 Continues to Inspire Students

by Nick Enge, CEE/ES109 TA

The Office of Sustainability collaborated with the Woods Institute for the Environment to again offer Civil and Environmental Engineering / Earth Systems 109 in the winter quarter. The service learning course brought together students from diverse academic backgrounds to learn about and contribute to institutionalizing sustainability at Stanford. Through lectures on energy, water, waste, food, transportation, and behavior change by Stanford professors and practitioners, and on-site sustainability audits at the Haas Center for Public Service, students learned how much the university has already done and how many opportunities remain for further improvement. Based on what they learned, participants developed several proposals which will help the Sustainable Haas Committee prepare for successful implementation of the Building Level Sustainability Program.

After each topic-specific audit, students submitted reflections—the following excerpts from these assignments highlight the positive impact of CEE/ES 109 on student awareness and understanding.

Energy

It's fascinating to see how many basic opportunities there are to reduce energy consumption in our built environment and it's humbling to know that many of these techniques have been around for thousands of years; for instance, orienting the building so that south-facing windows can absorb the sun's radiant heat and passively use daylight to keep the building warm in the winter and cool in the summer (using window shades) or commissioning a building to make sure that HVAC systems are working properly. Seems obvious, right? But then we're sitting here at Stanford, in our energy efficient jewel, Y2E2, and we hear that for the first two years the systems were fighting each other. So now when people ask me what I'm doing at Stanford, I respond without sarcasm by saying, "I'm studying common sense." - *Signo Uddenberg*

During our audit of the HAAS center, the class noticed that right off the bat there were some quick fixes for reducing energy consumption and that the people we talked to were very open to changing their behaviors. Overall it was

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New How To Guides Now Available!

Created to answer the most common questions posed by the Stanford community, electronic guides provide step-by-step instructions targeting a specific sustainability opportunity. Expanded offerings now include:

How to Start a Bike Share Program

How to Start an Office Composting Program

How to Apply for Server Consolidation and Virtualization Incentives

How to Eat More Sustainably

How to Reduce Commute Impact

Please send questions or suggestions about future guides to Jiffy Vermylen.

Join the Stanford Environmental Alumni/ae Society

The Stanford Environmental Alumni/ae Society (SEAS) was created to connect Stanford alums who are interested in environmental issues. Whether you were a member of Students for a Sustainable Stanford, Students for Environmental Action at Stanford, the Student Environmental Congress, any other Stanford environmental organization, or even if you found a passion for environmentalism more recently, all are welcome! There are now 87 members and counting. To join, go to http://alumni.stanford.edu/goto/seas. Share your reflections on past Stanford environmental activism, as well as your current work and ideas for environmental campaigns on the discussion and blog.

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a fun field study and I'm looking forward to working with the HAAS center in the next few weeks! - *Alex Pulido*

Water

The water audit was really cool and practical because I can use what we learned in my dorm, home, and everywhere I go. The things I felt that were most valuable were learning how to identify the models of fixtures in bathrooms. The labels for toilets and urinals are on the porcelain, usually next to the flusher, which include both the brand and number of gallons of water per flush. The faucets say the gallons per minutes on the end of the faucet. For the toilets, urinals, and faucets, it is best to actually time the amount of water used per flush or minute instead of just trusting the manufacturers. We were given equations that estimate the water usage and during our audit, the calculated values were similar to those given by the manufacturer. - *Marielle Price*

The water consumption tracking project taught me a lot about my own water use. Just by changing small habits, like shortening my showers, I can reduce my daily water use by half. That would be going from about 50 gallons a day to 25. It is habit changes like shortening showers that make an immediate difference in overall water consumption. Also, I learned that I drink a little over a gallon of water a day, but that the water I drink barely makes a dent in the amount of water I consume daily with other activities. - *Nathalia Bailey*

Waste

The waste audit was just an incredible experience. I wasn't sure what to expect when it was first mentioned that we were going to sort through trash for an hour. After all, you never know what crazy concoctions students create that they want to throw away. At the beginning, I honestly didn't know what went where. The only areas I knew were bottles and cans, paper towels (pretty self-explanatory) and organic materials. Actually, all of those are pretty obvious. However, all of the 0, 1, and 2's on the materials threw me off! I have actually never seen a 0 – the fact that you can compost a spoon is unreal! It was quite exciting to see this. I didn't know the difference between the paper plates with the plastic lining and the non-plastic lining, I had no idea where candy wrappers went, didn't know where plastic bags went, no clue what to do with Starbucks or Jamba Juice cups – the list goes on and on. - *Cassidy Horn*

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The benefits of proper recycling span from reduced harmful emissions from landfills and reduced resource extraction and pollution from mining and manufacturing to less energy-intensive feedstocks for new production. Whereas only 26% of what Stanford sends to the landfill is really trash, the university does divert 64% of its waste stream into recycling of some sort. This compares favorably with California's 58% and the U.S. average of 33% waste diversion. It is interesting to note, that out of Stanford's total waste stream, 17% is diverted as basic recyclables, 31% as organic material, and 16% as construction debris, adding up to the 64% mentioned above. We are well on our way towards our "Zero Waste" goal. - *Lawrence Garwin*

Student Story: Students for a Sustainable Stanford Celebrates 10 Year Anniversary

By Judee Burr, Class of 2012, SSS Outreach Leader

On February 4th, 2011, the Haas Center bustled with activity at the Students for a Sustainable Stanford (SSS) 10th anniversary party. Faculty, staff, alumni, and students gathered to acknowledge the student work over the last decade to make Stanford a greener campus.

At the party, former President John Mulrow '09 emphasized the active role that SSS played in instigating campus-wide behavior changes. Alumni and current students in attendance shared experiences and ideas on how to continue this tradition. In an address to the group, co-presidents Molly Oshun '10 and Siddhartha Oza '10 recognized SSS's debt to past sustainability activists: "We know there is much to be learned, both as an organization and as individuals, from those who came before us and we welcome the opportunity to foster such discussions."

At present, SSS includes separate subgroups focused on environmental justice, climate change, water, and recycling. This year alone, SSS, newly affiliated with the Haas Center, fought a campaign against Proposition 23, initiated a tailgate recycling program, started a series of sustainable living workshops, and installed another rainwater harvesting system on campus.

Making an impact is a challenge, but the warm words of Julie Kennedy, Senior Lecturer in the School of Earth Sciences, fill the future of SSS with promise. The support of the Stanford community and the passion of SSS members ensure that this group will continue to thrive.

10th Anniversary Party attendees included faculty, staff, students, and alumni supports of SSS.

Second Bike Safety Repair Stand Opens @ LKSC

The School of Medicine is now home to the second bike safety repair stand on campus. Located across from the LKSC bike lockers and between the bike racks on the east side of Beckman, the stand enables cyclists to make minor repairs using free tools securely fastened to the rack. A tire pump is also provided, making it more convenient for the campus community to maintain safe bicycles.

The original repair stand sits at the intersection of Galvez Mall and Escondido. Additional stands are being planned for other locations around campus.

For more information, visit the bicycle program web page.

Stanford Biologists Unveil New Understanding of Leatherback Turtles

Results of a 5 year research project provide critical insight to the lives of Leatherback Turtles, and may help reduce the impact of fishing on the dwindling population of this mighty creature. Tagging and tracking the turtles allowed researchers to observe behavior and movement patters, and sheds some light on why the turtles spend time in and around the South Pacific Gyre.

Photo courtesy of the Woods Institute

Click here to read the full article, originally published in the Stanford Report.

Student Story: Vision Earth Event Scheduled for Earth Week

By Sarthak Misra, Class of 2012

Stanford will have its first Vision Earth Festival April 21-23 in White Plaza. Previously known as the An Art Affair and Future Fest Collaboration, Vision Earth is the product of student art and sustainability groups on campus. Exhibits will feature the work of dozens of student artists and organizers hope to host more than 1000 visitors.

Vision Earth's primary goal is to motivate students and get them invested in sustainability. Vision Earth plans to achieve this by allowing students to become active participants. Students are called upon to contribute visual art, performance pieces, sustainability design projects, music and other projects. Vision Earth also plans explore the culture surrounding sustainability. Festival organizer want to debunk the myth that sustainable living requires sacrifice by illustrating that sustainability celebrates the richness of our closeness to the earth. Juxtaposing art, design, engineering, and sustainability will demonstrate this to festival visitors.

Members of the Stanford community can learn more about Vision Earth by visiting http://visionearth.stanford.edu. All students of all majors can sign up to be a part of this inclusive festival.

Student Story: Green Fund Project Expands Rainwater Harvesting on Campus

By Akwasi Abrefah, Class of 2012

This year, the water subgroup of SSS wanted to continue expanding Stanford's rainwater harvesting (RWH) community. After a successful project completed at Synergy last year, the group targeted Columbae. A quarter of planning with Engineers for a Sustainable World (ESW) and Stanford Housing, and a grant from the Green Fund, allowed construction to begin on January 29th in conjunction with an interactive workshop for Stanford community members.

The system consists of three 60-gallon barrels elevated by cinderblocks and secured to the house via earthquake straps. The team diverted one of the existing downspouts from the gutter on the southeast side of the house and directed the flow into the first barrel. All of the barrels were connected, an overflow hose was added, and connections were made to the drip-line irrigation system already in place in the Columbae garden.

Brad Daniel, founder of Rainsavers, Hannah Rich and Akwasi Abrefah, co-leaders of the water subgroup, coordinated the workshop and led the construction project at Columbae

The water subgroup plans to expand RWH projects on a larger scale throughout the Stanford community. For more information, contact Akwasi Abrefah.

Parking & Transportation and SSS Host Bike Safety Repair Clinic

By Lisa Kwiatkowski, Parking & Transportation Services

Bicycling is a green choice for getting around campus, but what if you're not sure whether your bike is safe to ride or what to do if your bike needs basic repairs? Last month, Stanford held a free, hands-on bike safety repair clinic to share these quick and useful lessons. Parking & Transportation Services partnered with Students for a Sustainable Stanford to put on the clinic as part of the SustainaSkillS workshop series.

"People are excited about these workshops, because they are teaching skills that everyone can use. Bike repair is a perfect example," said Judith Burr, '12, an outreach leader with Students for a Sustainable Stanford. "Whether or not you are an environmentalist, everyone wants to save money and avoid wasting resources."

More than 20 students dropped in and learned the basics, including how to lube a chain, change a flat, inflate tires, and more. Top mechanics Jim Chaskin and John Mara from the Campus Bike Shop assisted with instruction. Participants also received a pre-ride safety sheet as a reminder to ride and maintain a safe bike. Another clinic is expected this spring in conjunction with Bike to Work Day — stay tuned!

Participants in the bike safety repair clinic

Student Story: A Testimonial on Farm Education Experiences

By Briana Swette, Class of 2011

I started gardening at the Stanford Community Farm within a few weeks of arriving on campus four years ago. My eager desire to connect with our California environment brought me to the weedy student garden, and it quickly became my favorite corner of campus. I could explore my human relationship to the

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Stanford's Y2E2 Honored with ASHRAE Technology Award

Stanford's landmark Jerry Yang and Akiko Yamazaki Environment and Energy Building (Y2E2) was honored with a first place ASHRAE Technology Award in the new institutional building category. Stanford representatives were on hand in Las Vegas at ASHRAE's 2011 Winter Conference to accept the award, which recognizes Y2E2's exceptional design and proven energy performance. Y2E2 currently consumes 44% less energy than code (ASHRAE Standard 90.1-2004). For more information on the ASHRAE Technology Award given to Y2E2, please visit the ASHRAE pressroom.

Snapshots from GSB — Dedication Scheduled for April

As shown in the photo above, a saw tooth roof design enables north light to fill the Bass Center atrium while also providing multiple south-facing services for solar panels. The photovoltaic arrays on the roofs of the Knight Management Center will generate more than 500,000 kilowatt hours per year, harvesting enough solar energy to power 12.5 percent of the complex's energy demand and contribute to the expected LEED Platinum certification. Solar City will complete the installation this summer. The Center opens in April 2011, with the building dedication scheduled for April 29th at 12:30PM in the Town Square.

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biophysical world and ground my Earth Systems education in sustainable agriculture and land use.

The garden began to resemble a farm upon the arrival of Stanford's first Farm Educator, Sarah Wiederkehr. As she led the transformation of the space, I felt a personal transition from a theoretical curiosity in agriculture and hobby gardening to a practical interest in farming. I became involved in holistic farm management, partaking in all parts of the operation from seeding to marketing. It took a few years to grow the courage to kill my first gopher, and it was moments like that, surprisingly, that became the true milestones of my education. In my last year at Stanford, I am honored to share those experiences on the farm with my peers as a teaching assistant for Sarah.

Somewhere along the way, I gained the confidence to say, "I want to be a farmer." That dream came true sooner than I thought. As I finish my degree in Earth Systems, four friends and I are beginning a small farm venture in the Diablo Range nearby. We are currently raising our first flock of chicks, and waiting for the soil to dry to plant a buckwheat cover crop. As I begin my life-long education in sustainable farming, I will always be thankful for my start on the Stanford Farm.

Student Story: Compost Awareness Week Helps Kick-Off RecycleMania

by Marielle Price, Class of 2011 and Christina Zhou, Class of 2011

Stanford Hospitality's Compost Awareness Week, which took place during February 7th – 11th, educated diners about composting and other waste disposal practices on campus. The event coincided with the start of RecycleMania, a national competition between universities focused on increasing recycling and diverting waste from landfills. Compost Awareness Week targeted Tresidder Union Square and The Axe and Palm cafe during lunchtime. Student volunteers used homemade signs displaying compostables from the eateries and spoke to diners about waste disposal at as they were eating and as they approached the waste bins.

As two of the organizers and volunteers, we found Compost Awareness Week to be very encouraging. Most of the diners we spoke to were enthusiastic about the composting program and wanted to make sure they disposed of their waste properly. We had the most success by directly interacting with customers. We went table by table and asked groups of people if they knew what was compostable from their meal. Usually people needed some assistance, especially with the corn-based plastic products, which are hard to distinguish from petroleum-based plastics. We also stood by the waste stations to help people separate their trash when they were finished with their meal.

Compost Awareness Week was a success and we are planning another one for the week of March 28th through April 1st, to push for educated eaters as RecycleMania comes to a close.

Student Story: Green Solutions for Urban Runoff in Monterey Bay

by Julie Stewart, Graduate Student

The Center for Ocean Solutions (COS) facilitated local environmental collaboration through its Interdisciplinary Problem Solving Course in December 2010 at Hopkins Marine Station. COS is a partnership between Stanford, the Monterey Bay Aquarium, and the Monterey Bay Aquarium Research Institute (MBARI), and it was COS' graduate education initiative MARINE that brought students from six area institutes together for the course.

Set up as an environmental consulting project, the course required students to develop policy recommendations about urban runoff mitigation for city planners of Pacific Grove, California. Students assessed water quality data collected by the Monterey Bay National Marine Sanctuary as well as information provided by local legal, urban planning and water quality experts.

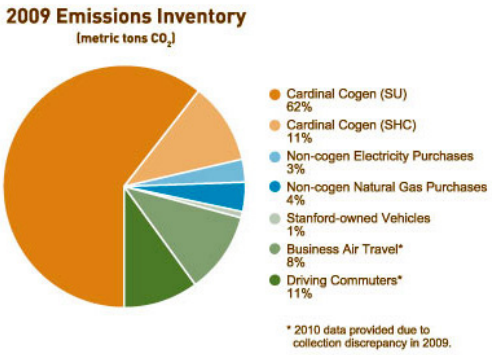
A walk in the rain to look at storm drains: MARINE students learn firsthand about runoff issues. Photo by E. Loury.

The students had diverse backgrounds in policy, communications, coastal and watershed science, ecology, oceanography, engineering and chemistry. In four groups, they worked together and to apply the skills developed in their respective fields. All groups recommended a green landscaping approach ("bioswales") to slow the flow of stormwater and to prevent it from accumulating pollutants before reaching Monterey Bay.

This project was a very exciting bridge between academics and local government. The working relationships initiated between local groups yields even more opportunities to create solutions to environmental issues.

2009 Emissions Inventory Officially Certified

Stanford recently received third-party certification of its 2009 greenhouse gas inventory through the California Climate Action Registry. Stanford has completed this process each year since 2006. The university's core GHG emissions (carbon dioxide equivalent) for Scope I and II emissions from the main campus totaled approximately 180,500 metric tons. In addition, the campus prepared unofficial inventories of its Scope III emissions and those attributed to steam and chilled water deliveries to SHC. Emissions of the 5 other greenhouse gases identified in the Kyoto Protocol (methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride) were reported to the CCAR for the first time in 2009.



Stanford Wins Highest Award for Bike-Friendly Universities

The League of American Bicyclists designated Stanford a Platinum-Level Bicycle Friendly University. This year marks the inaugural year of such designations by the League and Stanford is the first and only university to achieve the platinum rating. Announced at the National Bike Summit in Washington, D.C., the full press release can be viewed here.

The Bike Program website provides more details and resources about Stanford's specific offerings.