



Leaders in Energy

Coming Full Circle with Sustainability:

**A Workshop on Building a Circular Economy in
the DMV Region**

**Leaders in Energy
University of the District of Columbia
September 28, 2017**



Sector Presenters



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UDC Food Hub System supporting Circular Economy

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College of Agriculture, Urban Sustainability and
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UDC

September 2017

Humanity's greatest invention

- Humanity's greatest invention, cities have always been home for human creativity, but today they have become the basic platform for economic and business growth.
- More than half of the world's population lives in cities – over three and a half billion people – and an estimated 60 million more are moving to them every year.
- By 2050, more than 70 percent of the world's population will be city-dwellers.
- Cities stand at the forefront of the challenges and opportunities of the 21st century.
- Cities are responsible for 80% of global GDP – *our economy is undoubtedly an urban one.*

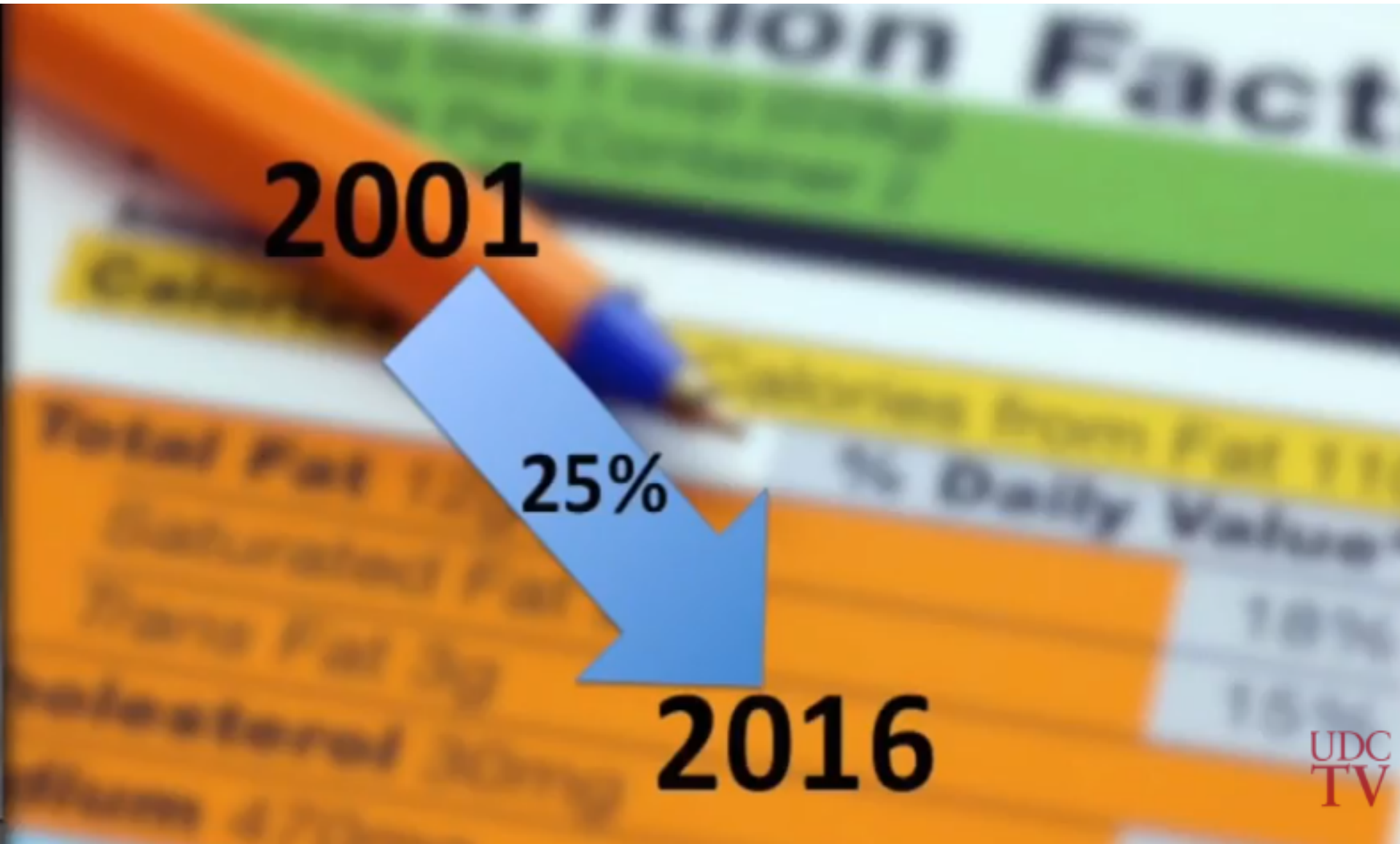
New urban areas around the world

- As today's cities adapt to new challenges, it is estimated that more than 60% of metropolitan regions that will exist in 2050 have yet to even form.
- As they do, over 3 billion more people will be added to urban centers, and massive investments will be made to construct the infrastructure necessary to support them.

Food Security

- **USDA defines “Food Security” as access by all people at all times to enough nutritious food for an active and healthy life.**
- **But as we know we have food insecurity all around world including Washington DC, the nation’s capital.**
- **The U.S. food system is lacking not providing enough food as well as not having enough high quality food.**

Nutritional value of food in the U.S.



Food travel in the U.S.

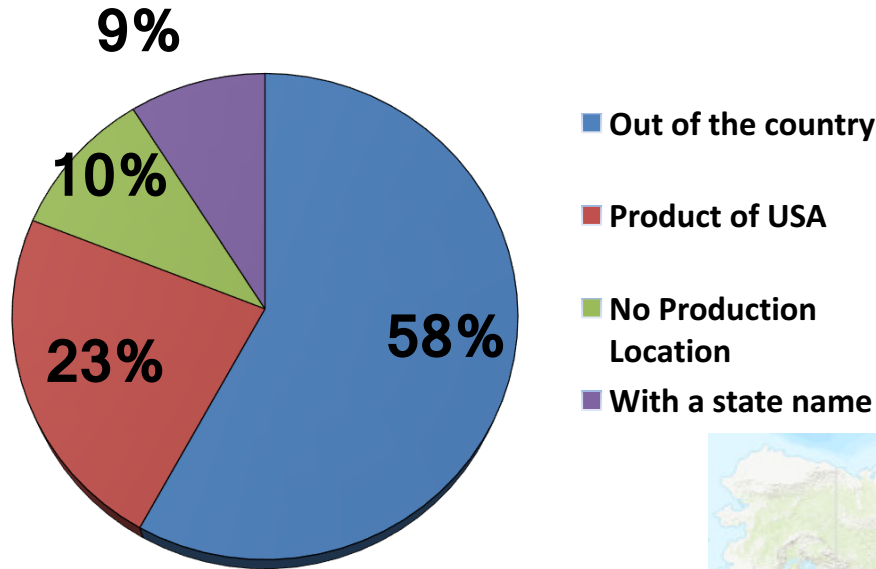
Food travel further and further before reaching our cities



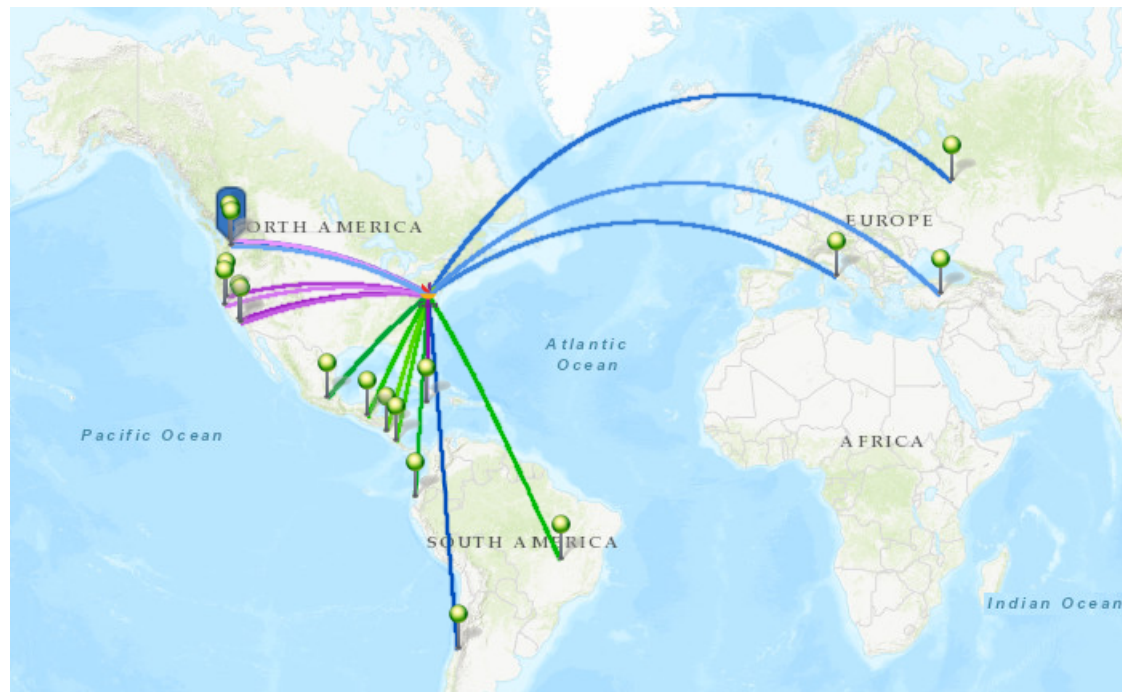
Where does our food
come from?

By: John-Bey, Ghana , Marie ,
Julio , Iestina

Production location of Vegetables and fruits in Giant Supermarket 2017



Worldwide sources of
our vegetables and fruits



Our cities are very vulnerable to food insecurity in East Coast

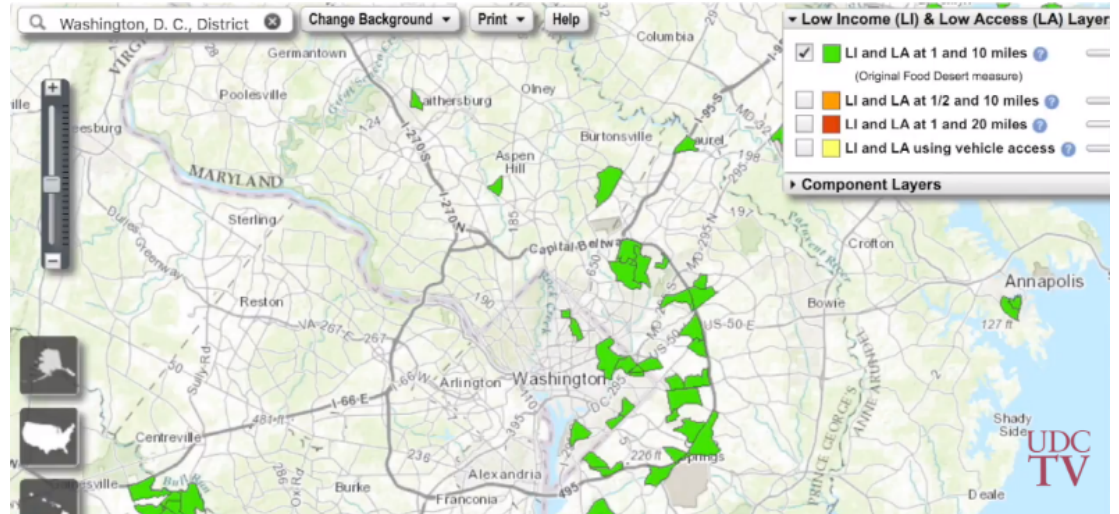


Top producers in the U.S.



Food desert in Washington DC

8 census tracts that
considered food desert
in Washington DC

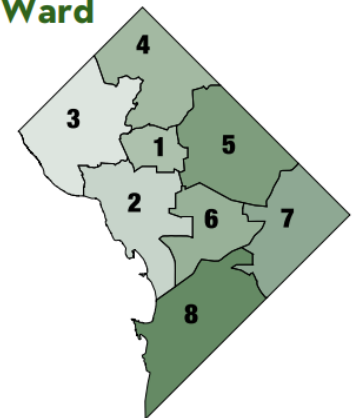


520 Stores Sell Food in Washington, DC
Less than 60 Stores Sell Fresh Food

UDC
TV

2015 Unemployment by Ward

- Ward 1: 4.5% (↓0.9% from 2014)
- Ward 2: 4.3% (↓0.5% from 2014)
- Ward 3: 4.0% (↓0.6% from 2014)
- Ward 4: 5.7% (↓1.2% from 2014)
- Ward 5: 7.9% (↓1.4% from 2014)
- Ward 6: 5.2% (↓1.0% from 2014)
- Ward 7: 11.0% (↓2.0% from 2014)
- Ward 8: 14.2% (↓2.1% from 2014)



2032 Goal: 4.6% in Every Ward

Health problems in low income neighborhoods in DC

- In many parts of the world we have health problems because food is grown or stored in unsanitary condition.
- In the US, we have many health problems because of limited access to healthy and fresh produce.
- Our health problems in the US are:
 - Blood pressure
 - Diabetes
 - Hypertension
 - Obesity



In Washington DC

- **37% of Washington DC Households with children unable to afford enough food in the past year.**
- **This is the highest in the nation**





12.2%
OF ALL HOUSEHOLDS IN DC
REPORT DIFFICULTIES IN AFFORDABILITY
AND ACCESS TO FRUITS AND VEGETABLES⁵⁸

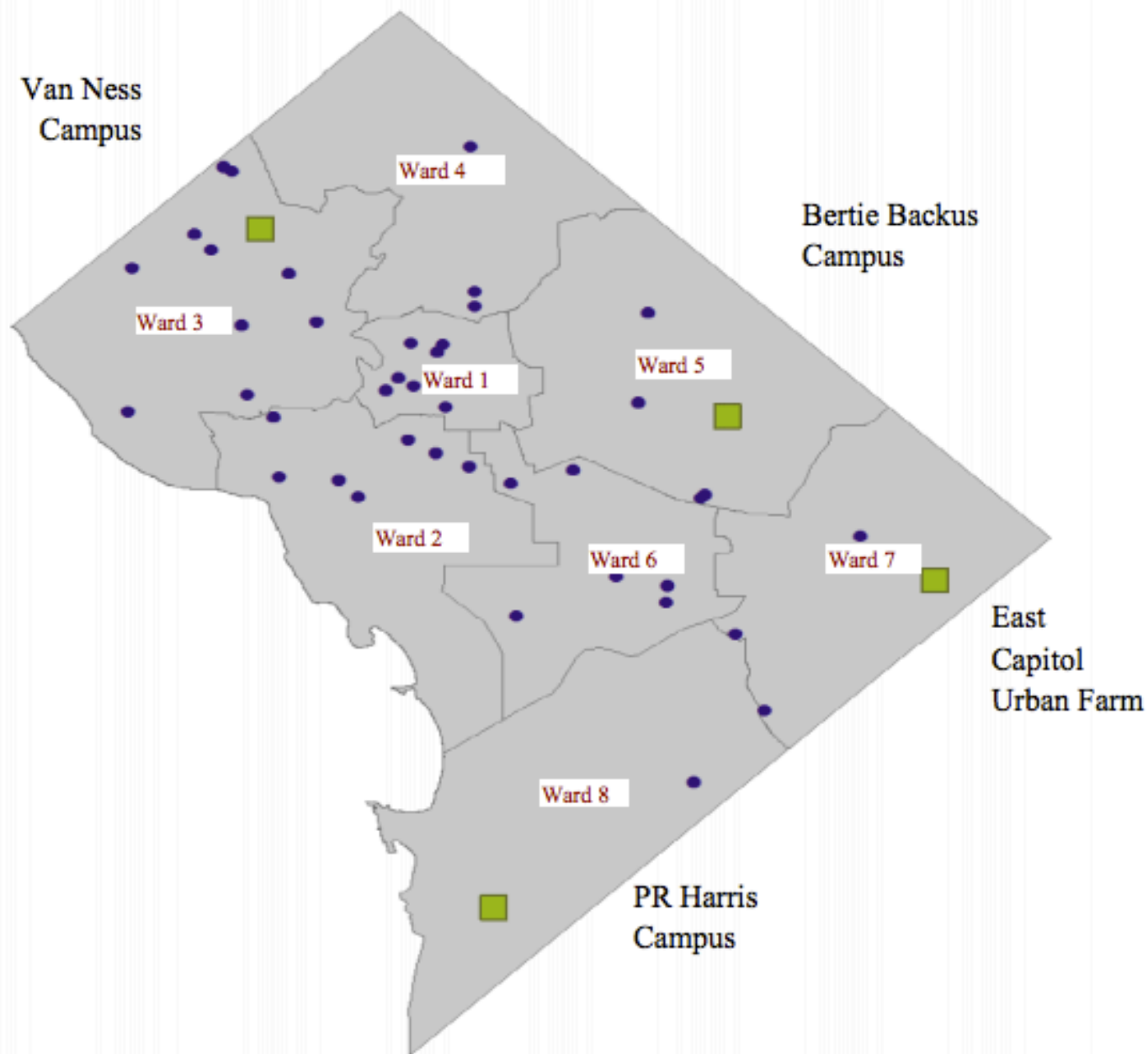
The UDC Urban Food Hub Concept

1. Food production
2. Food preparation
3. Food distribution
4. Waste and water recovery
(closing the loop)

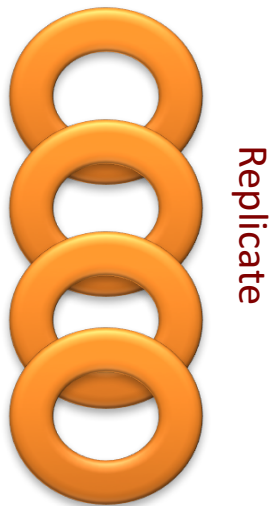


- The urban food hubs are designed to form a network of food security island through of our city.
- Our food hubs will improve nutritional health, lower public health expenditure, create new businesses, improve air and quality and improve soil quality.

Figure 1: *Full-service Grocery Stores and Urban Food Hubs in Washington D.C.*



CAUSES Urban Food Systems Model



Replicate

Produce

**Aquaponics:
fish and
produce**

**UDC Firebird
Farm**

**Community
Partners**

Vendors

Prepare

**Business
Kitchen
Incubation
Space**

Food Truck

Distribute

Food Truck

**Farmers
Markets**

Retail

Recycle

**Community
Composting**

**Anaerobic
Digestors**

- Entrepreneurship
- Communications/Marketing
- Business Planning and Management
- Food Preparation
- Policies and Legal Processes

- Economic Analyses
- Environmental Impacts
- Maintenance and Management
- Technical Assistance
- Healthy Foods/minimize fishing from Anacostia

Jones & O'Hara© 2013

UDC Land-grant centers

- The Urban Food Hub is anchored in five UDC land-grant centers.
- These centers provide a wide range of community related programs and trainings.
 - Food safety
 - Master gardening
 - Urban Agriculture classes
 - Entrepreneurship classes
 - Green infrastructure classes

In UDC we want:

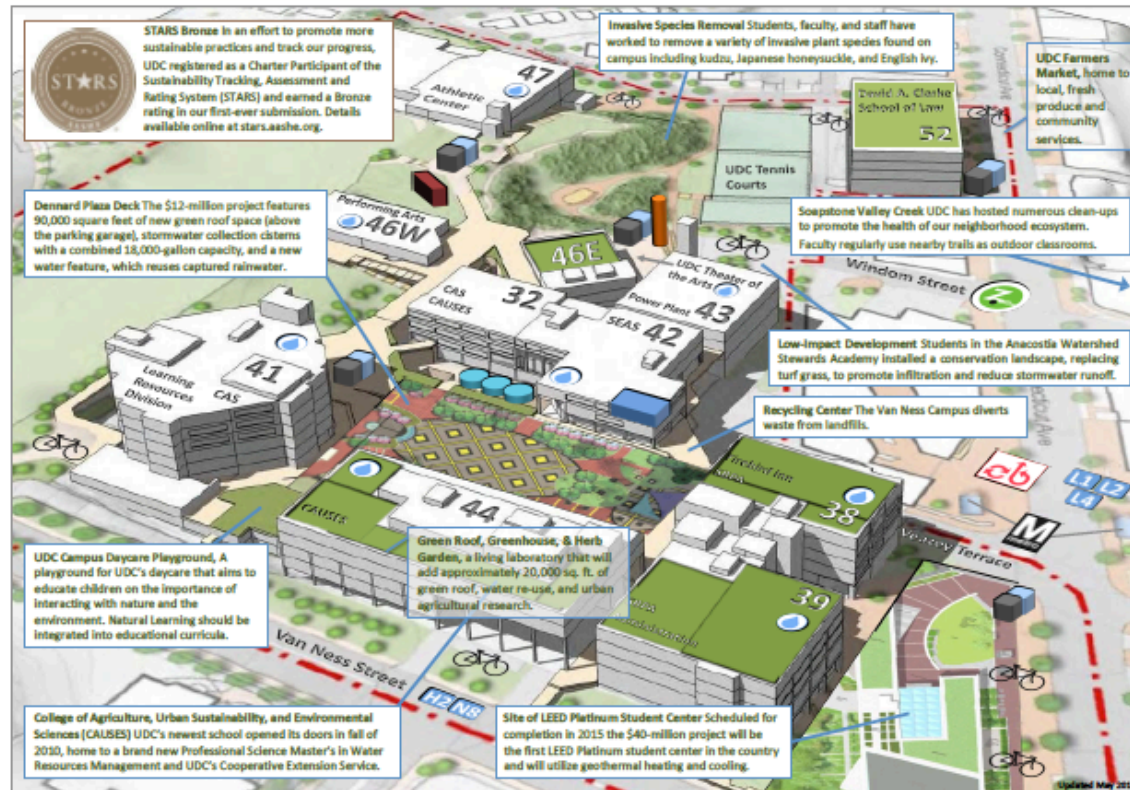
- **Grow more food in the cities**
- **Train the community about urban food systems**
- **Add more value to locally grown food**
- **Food sanitation**
- **Building innovative food distribution system**
- **Reduce waste and reuse waste in our food production**

University of the District of Columbia



Van Ness Campus Sustainability Map

"Our goal is to serve as a sustainability leader among institutions of higher education and as a national model for urban sustainability in both campus operations and educational offerings."



Efficient Operations

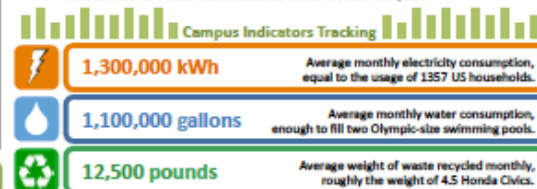
- Stormwater Collection Cisterns** collect stormwater runoff from the plaza deck for on-site reuse in a water feature, and in non-potable applications, such as irrigation.
- Future Big Belly Solar Trash and Recycling Compactors** operate entirely off the grid and require five times fewer pickups by service staff, helping to reduce costs.
- Sav-Watt Eco Pole** provides street lighting via long-lasting, energy efficient LED bulbs generated by two photovoltaic solar panels and a vertical-axis wind turbine.
- Brite Hydration Stations** installed at 24 locations in 8 buildings provide quick, easy access to filtered tap water at no cost to students, faculty, staff, and visitors. UDC is also a member of the Tap It Network, working to promote public access to campus drinking water. More info at www.tapitwater.com.

Sustainability Research

- EPA-Certified Environmental Quality Lab** will serve as DC's primary modeling and simulation facility, managed by UDC's Water Resources Research Institute.
- Zero Energy Visitor Center** is managed by UDC's Center for Excellence in Renewable Energy and generates 100% of its electrical need from solar and wind power.
- Planned Green Roof Sites** will be developed in partnership with the District Department of the Environment to study the performance and benefits of an array of green roof design types.

Intermodal Transit

- Van Ness-UDC Metro Station** transports more than 57% of commuters living and working within a half-mile of the station (for 7,215 residents and 6,334 employees).
- Van Ness Metro / UDC Capital Bikeshare Station** is part of a network of over 1,100 bikes at 110 stations all over the District of Columbia and Arlington.
- Zipcars at Connecticut and Window** are two of eight car-sharing vehicles located within a half-mile of the Van Ness Campus.
- WMATA Bus Lines** make stops at six locations at the edge of the Van Ness Campus along Connecticut Avenue and Van Ness Street.
- Existing and Proposed Bike Rack Locations** were identified in the 2011 Campus Master Plan. New racks will be installed within the next two years.



udc.edu/causes



twitter.com/UDC_CAUSES

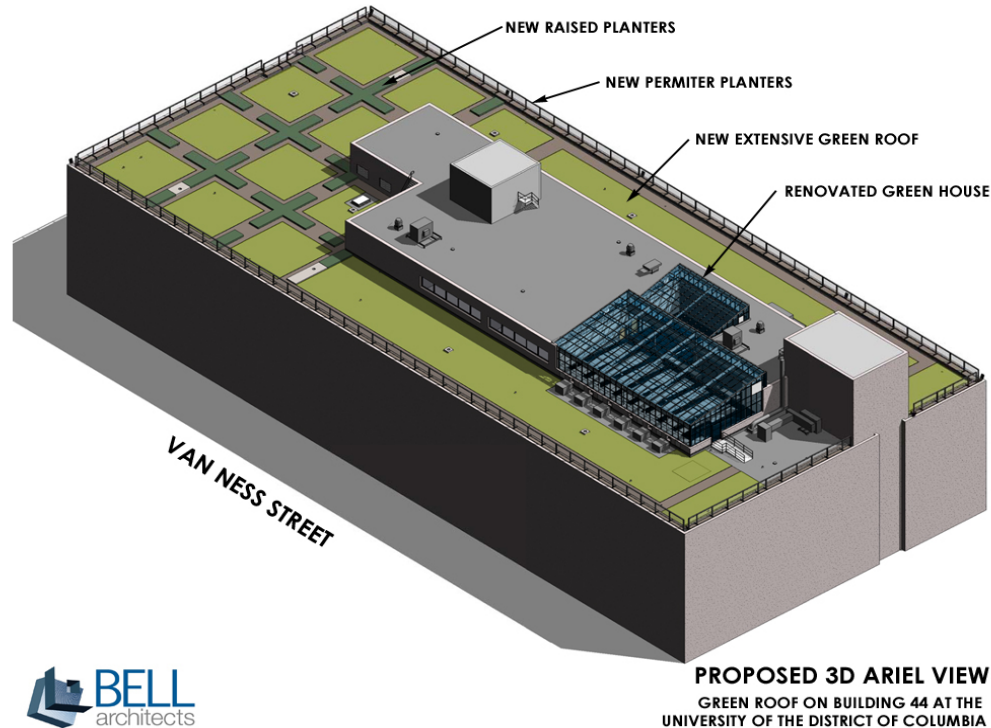


[UofDC.CAUSES](https://www.facebook.com/UofDC.CAUSES)



[Insta: udc_sustainability](https://www.instagram.com/udc_sustainability)

"Building for the Future"
UNIVERSITY OF THE DISTRICT OF COLUMBIA
CAPITAL CONSTRUCTION PROJECT



INSTALLATION OF GREEN ROOF & RENOVATION OF GREENHOUSE – BLDG 44

The green roof installation and renovation of the greenhouse on Building 44 will create a living laboratory in support of the College of Agriculture, Urban Sustainability, and Environmental Sciences (CAUSES). The project will add approximately 20,000 sq ft of green space and will feature water re-use irrigation systems and garden planters for urban agricultural research and demonstration.

Contractor: **CONSYS Inc.** Architect: **BELL Architects**

*Dr. James Lyons,
President*

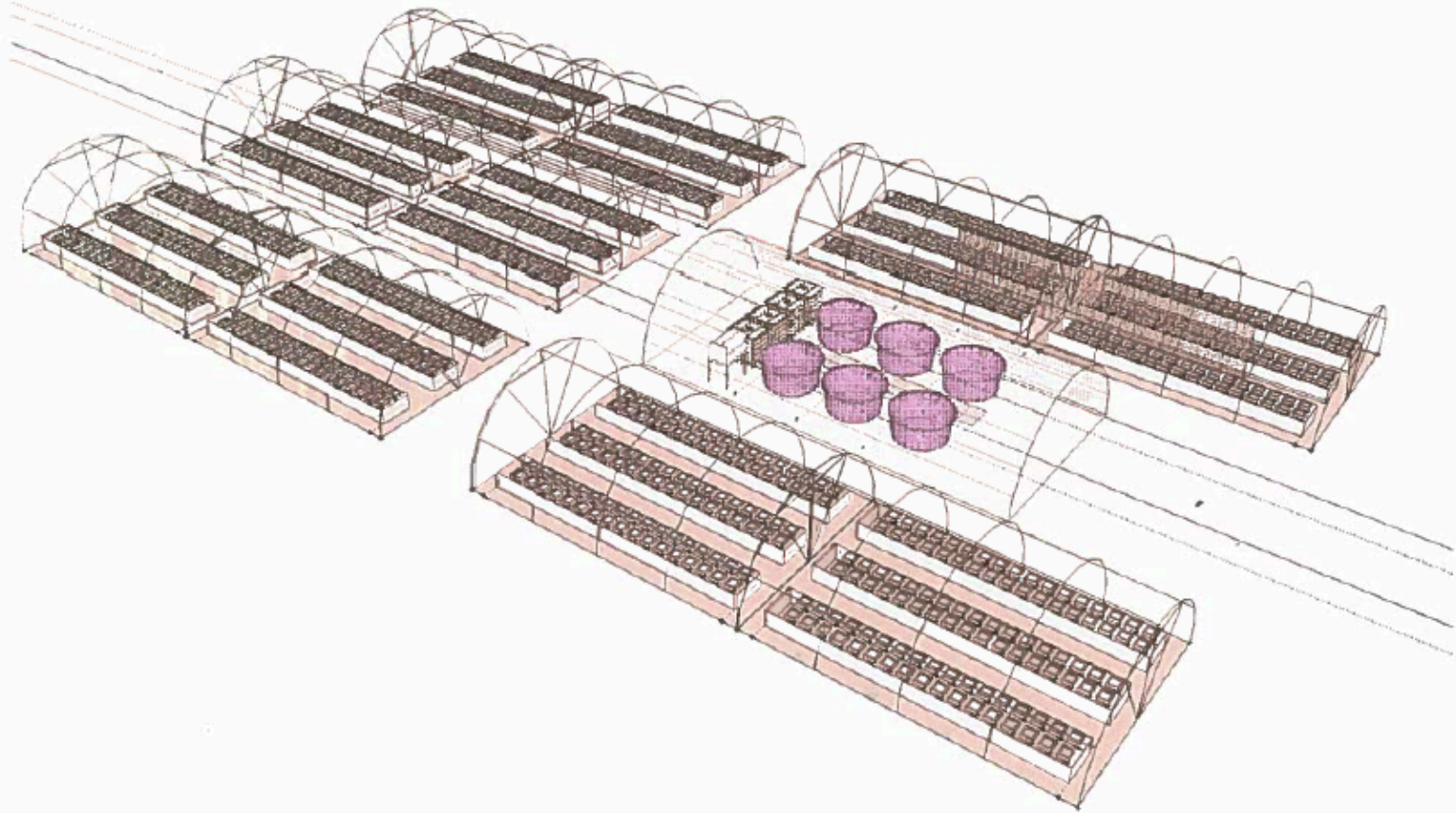
Project Start: **March 2014**
Completion Date: **August 2014**

*Barbara Jumper,
Vice President For Facilities & Real Estate*

DCPS Teachers Visit the UDC Firebird Farm



UDC's Community Garden System-Schematic



The UDC East Capitol Urban Farm



UDC East Capitol Farm



UDC Community Composting Project



Community Compost Build Day

Saturday, June 17, 2017

5:00 p.m. - 6:00 p.m.

East Capitol Urban Farm
5901 East Capitol Street SE
Washington, DC 20019

sustainability@udc.edu | (202) 274-7128

UDC Farmers Markets



The UDC Aquaponics



Thank you for your attention