



**Re-envisioning Bio-Diversity:
Integrating Pollinator Habitat into Existing Urban and Rural
Frameworks**

**New Partners for Smart Growth Conference
Portland, OR
February 11, 2016**





ASLA **MISSION AND VISION**

2014 ASLA Professional Awards Winner
Hunter's Point South Waterfront Park – Queens, NY
Firm: Thomas Balsley Association, and Weiss/Manfredi



MISSION

Landscape architects lead the stewardship, planning, and design of our built and natural environment.

The Society's mission is to advance landscape architecture through advocacy, communication, education, and fellowship.

VISION

Leading the design and stewardship of land and communities.

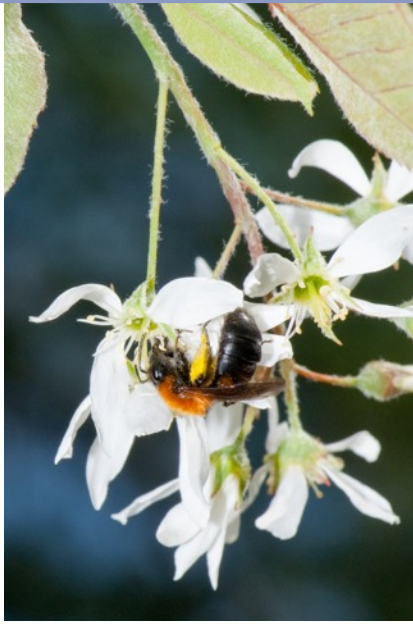
Re-envisioning Bio-Diversity: Integrating Pollinator Habitat into Existing Urban and Rural Frameworks

AGENDA

- Highlight pollination issues and propose a treatment to the problem as it relates to planning and landscape architecture
- To encourage landscape architects to be involved in local and national policy making
- Showcase the importance of forging political partnerships to encourage ecological design
- Educate the professional community on advances and partnerships within the landscape architecture community



POLLINATORS AND THEIR PURPOSE



Importance of Pollinators

**Insects, Birds, and
Mammals Pollinate:**

80% or 300,000 out of 352,000
flowering plants on earth

33% of Food Crops
ex. berries, melons, tomatoes

POLLINATORS AND THEIR PURPOSE



HONEY BEE

1 domesticated sp.
in North America

Highly **social**

Nest in managed **hives**

Perennial colony



NATIVE BEES

4000 spp. in North America

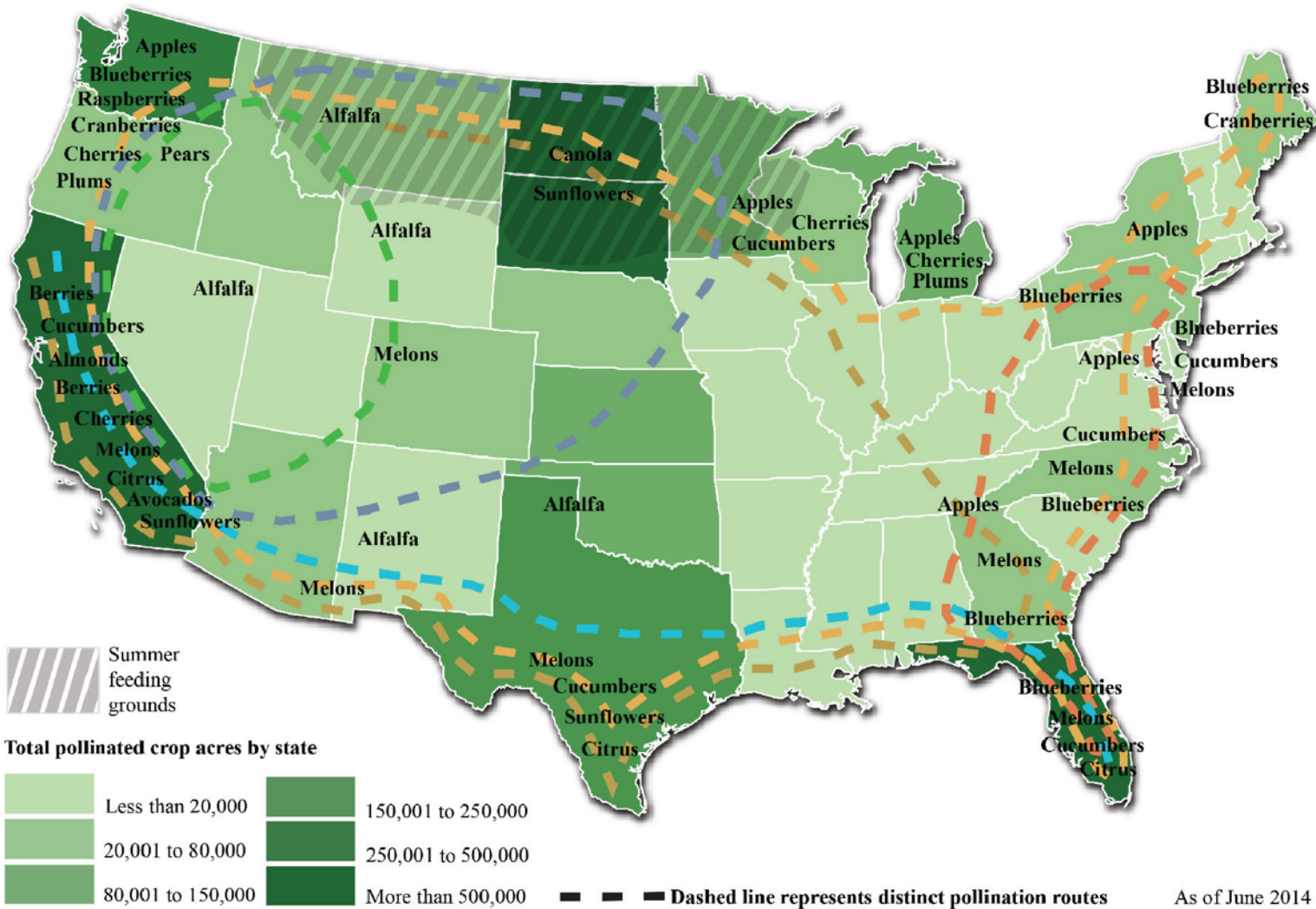
Majority (90%) **solitary**

Nest in the **ground** or **cavities**

Annual life cycle

POLLINATORS AND THEIR PURPOSE

Commercialization of Honey Bees



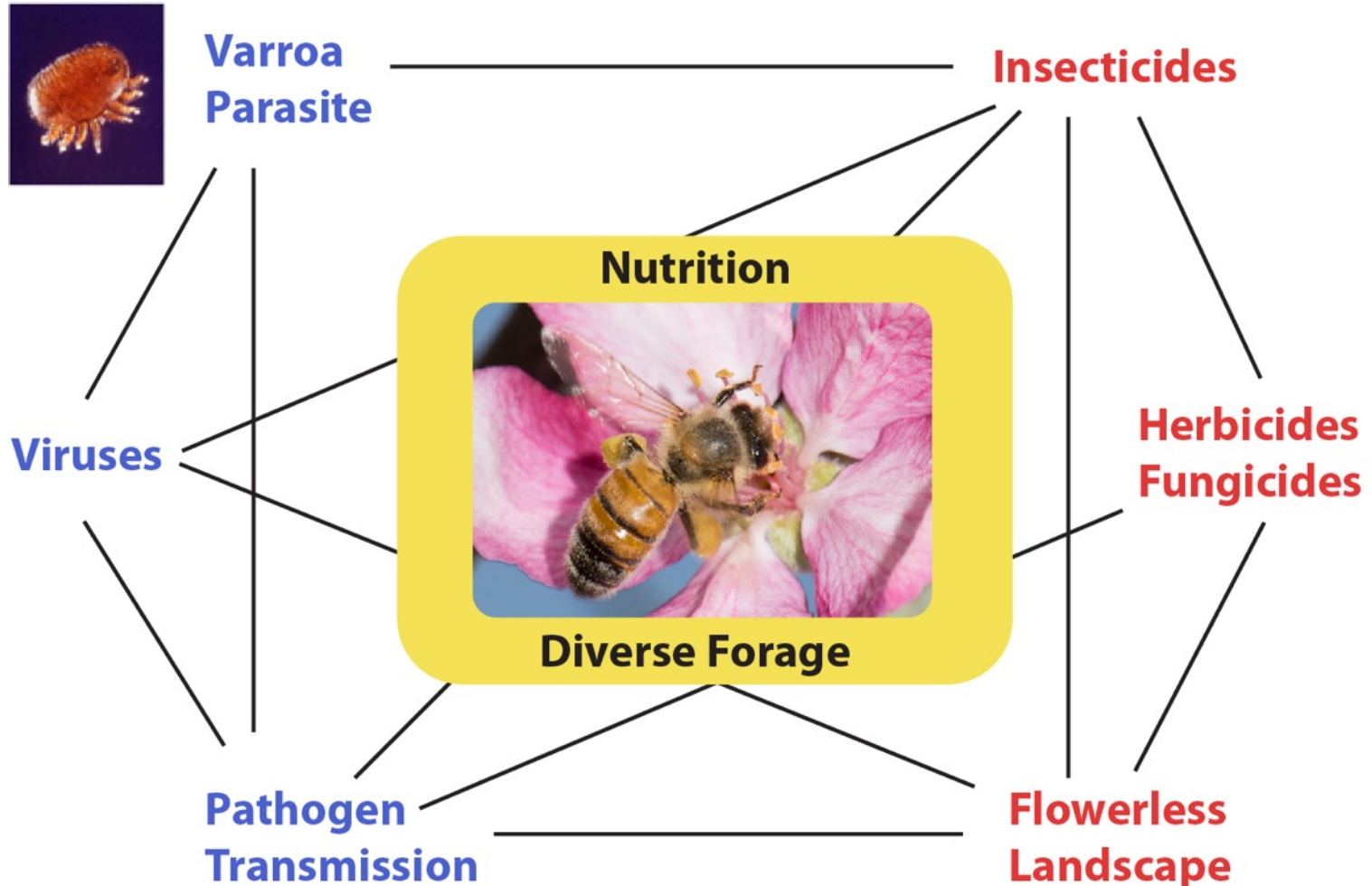
Source: USDA, Economic Research Service; Sautzman (2011), with input from commercial beekeepers and apiculture experts, including Dr. Jeff Pettis and Dr. David Epstein, an entomologist and authority on pollinators with the USDA's Pest Management Policy. Crop production acres are from USDA, National Agricultural Statistics Service, 2012 Agricultural Census.

POLLINATORS AND THEIR PURPOSE

Commercialization Effects on Honey Bee Health

HONEY BEE PROBLEMS

ENVIRONMENTAL PROBLEMS



NATIVE BEES - The 'At Risk' Bees



Four bumble bee species have declined 96% (last 20 yrs)¹

One bumble bee species is believed to be already extinct²

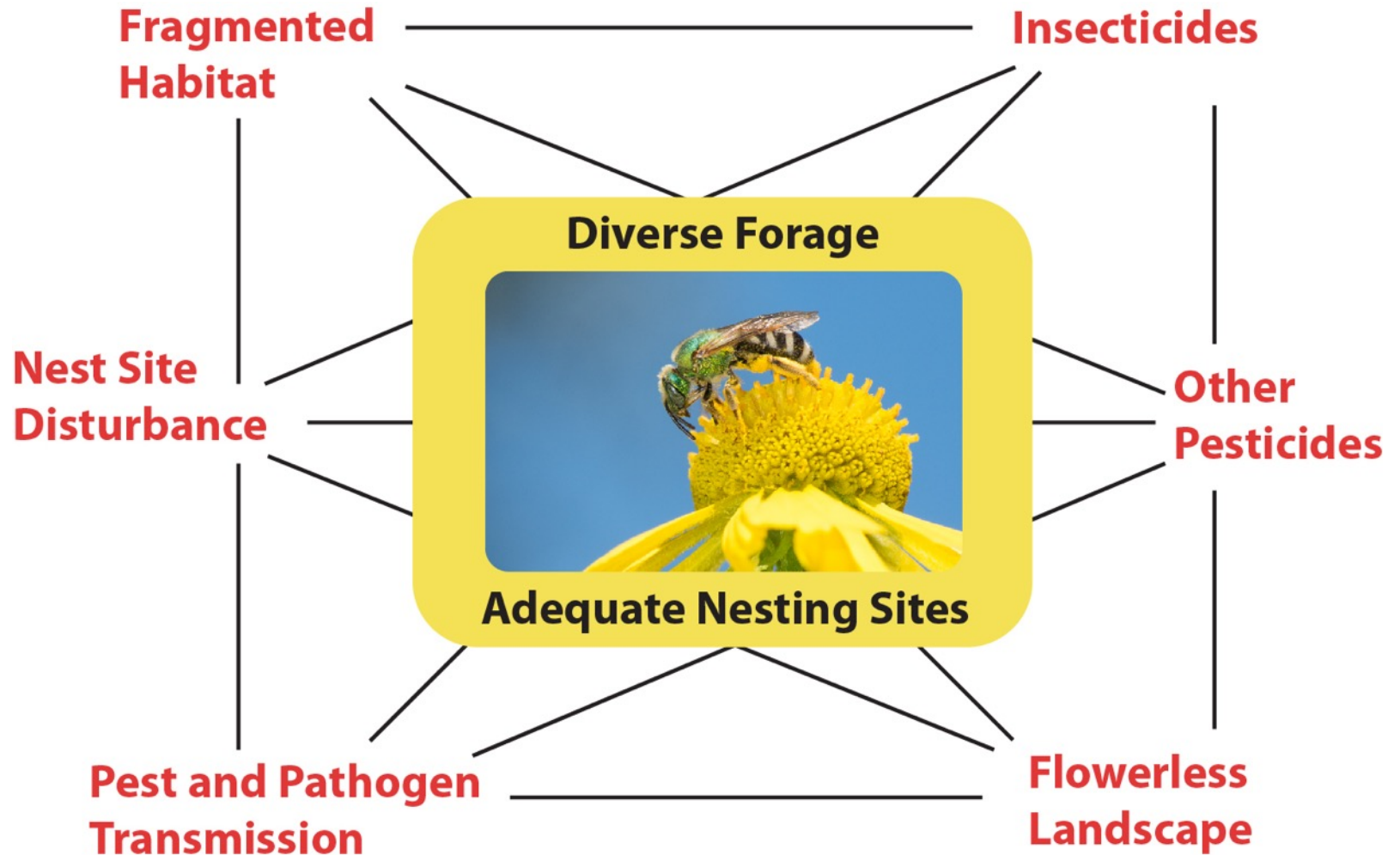
50% of Midwestern native bee species have disappeared from their historic ranges (last 100 yrs)¹

1. Burkle, et al. 2013. Plant-pollinator interactions over 120 years: loss of species, co-occurrence, and function. *Science* 339(6127):1611-5. doi: 10.1126/science.1232728.

2. The Xerces Society for Invertebrate Conservation Red List of Bees

POLLINATORS AND THEIR PURPOSE

Factors Affecting Native Bee Populations



NATIVE BEES - Pollinators of Food Crops



Curcubits:

Melon, squash, pumpkin

Berries: Blueberry, cranberry, strawberry, raspberry

Solanaceous Crops:

Tomato, pepper, eggplant

Native bees make a significant contribution to the pollination of many food crops in combination with honey bees or as a stand alone force.

NATIVE BEE CHALLENGES - Nest Disturbance

70% native bees nest in the ground



One year life cycle

Impacts:

Soil compaction

Tilling

Flooding

Pesticides

Land Use Changes



NATIVE BEE CHALLENGES

Absence of Nesting Sites



**30% native bees
nest in cavities**

Standing dead trees

**Rotting wood
on the ground**

**Plant stems
(from the previous
season's growth)**



Photo: Joel Gardner

BEE CHALLENGES - Flowerless Landscapes

Most Anthropocene landscapes lack an adequate amount of forage and nesting sites for native bees.



Commercial landscapes



Residential landscapes

BEE CHALLENGES - Distribution of Habitat

Bees cannot forage, nest, or travel through a fragmented landscape lacking flowers.



Native bees are limited by how far they can fly:
Small species ~ 200 yards Large species ~ 1 mile

BEE SOLUTIONS

Convert Unused or Underutilized Landscapes



Diversify existing habitat

**Connect or expand
habitat fragments**

power right-of-ways

riparian corridors

golf courses

city-owned vacant lots

highways





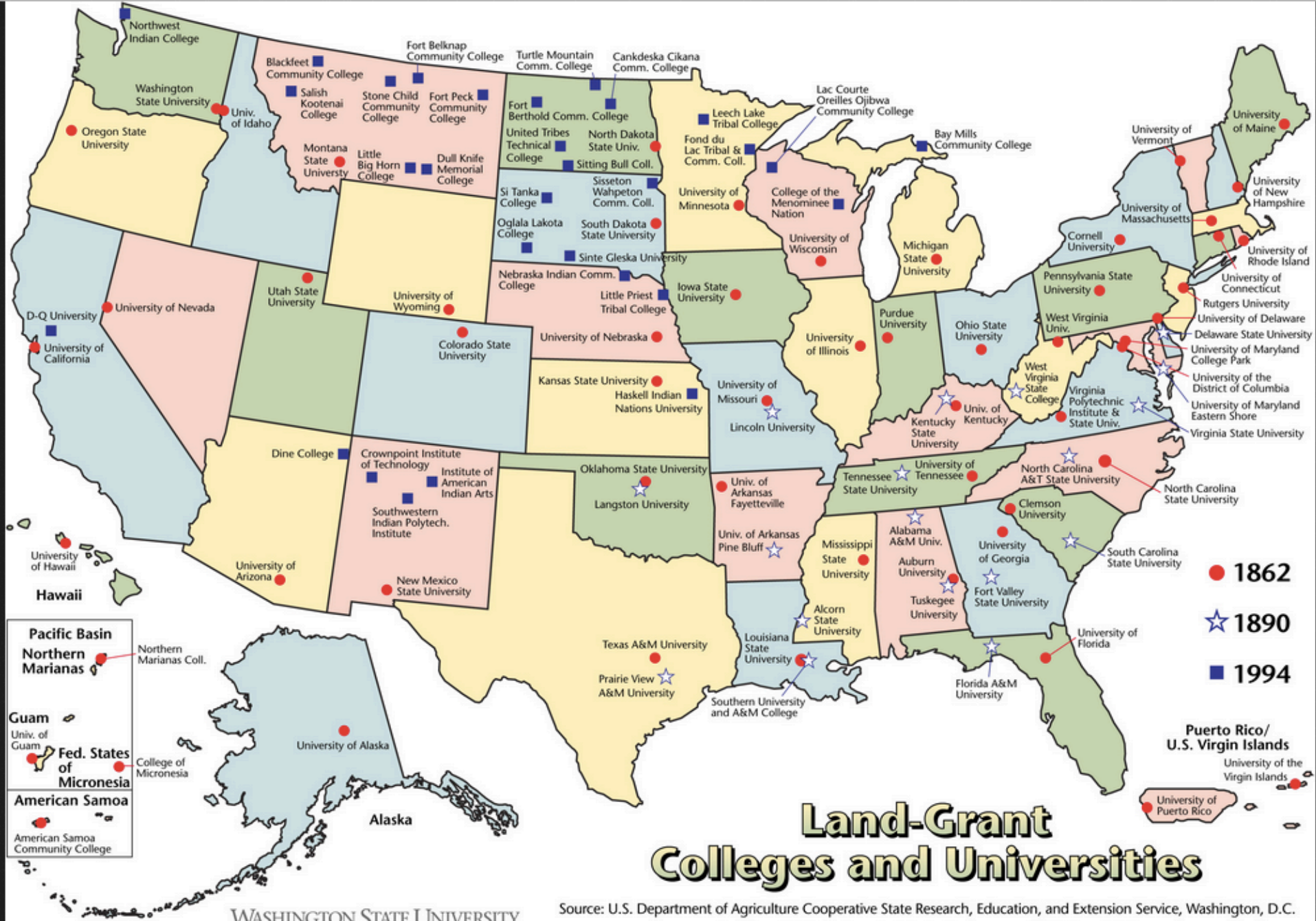
Dwane Jones, Ph.D.

Director of the Center for Sustainable Development

***College of Agriculture, Urban Sustainability, and
Environmental Sciences (CAUSES)***

Washington, DC

The Center for Sustainable Development provides relevant and innovative applied research and education to students, District residents, and the world in the areas of sustainable infrastructure, sustainable spaces, urban economics and entrepreneurship, and behavioral and social change.



Land-Grant Colleges and Universities

Source: U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service, Washington, D.C.

Based on U.S. Department of Agriculture map: m2783, June 2003

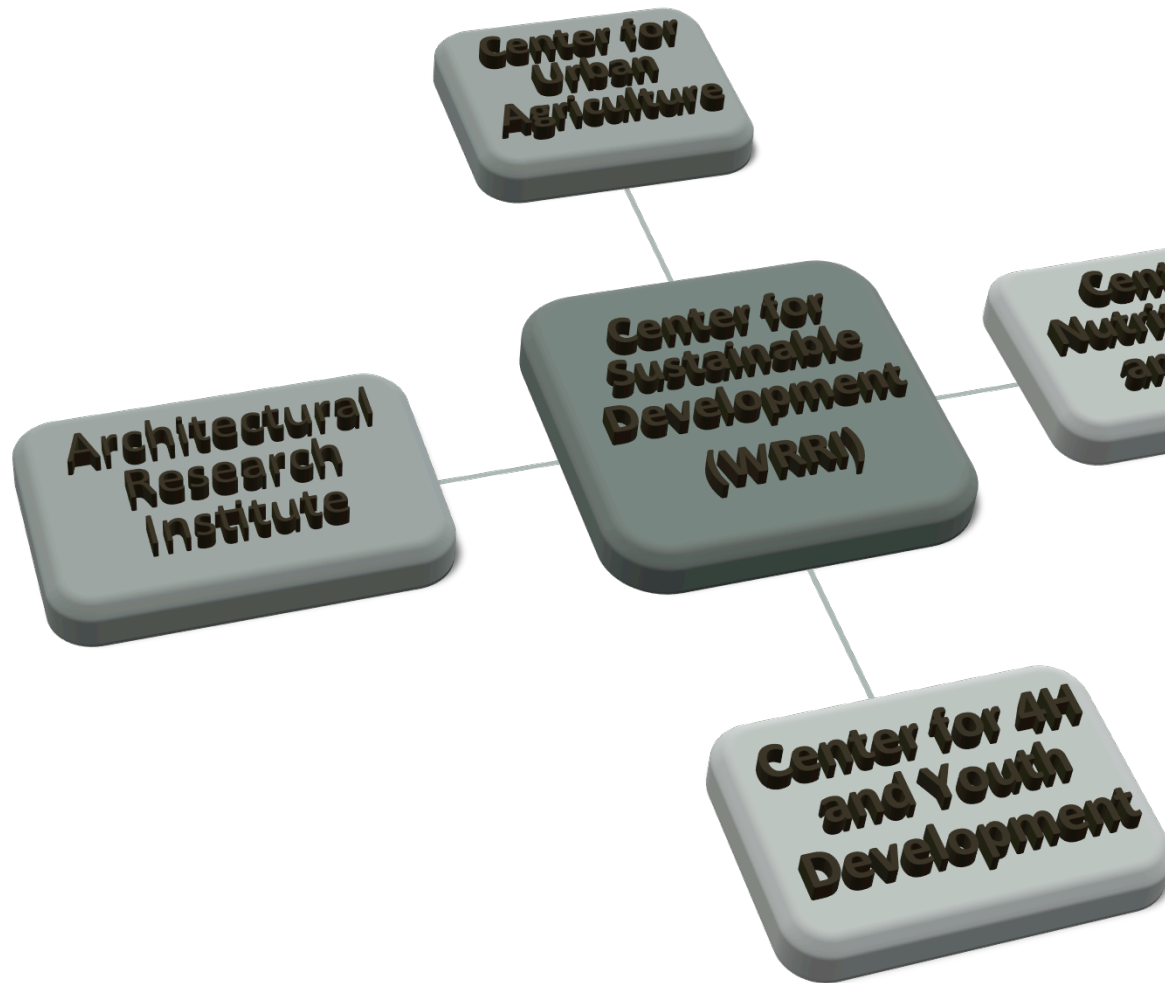
Prepared by Information Department, College of Agriculture and Home Economics in partnership with Extended University Services

G. Steffen—Graphic Designer • C. Fitzgerald—Principal Assistant • Published November 2003



World Class. Face to Face.

The Center for Sustainable Development Land-Grant Centers & Academic Programs in CAUSES



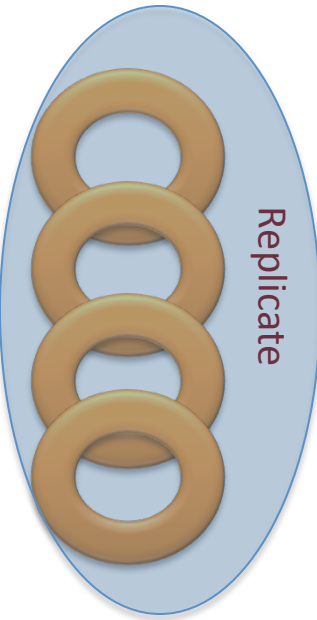
Academic Programs

- Architecture & Community Planning + Master's
- Nutrition & Dietetics + Master's
- Environmental Studies
- Health Education
- Nursing
- PSM-Water Resources Management
- PSM-Urban Sustainability*
- PSM-Urban Ag*



CAUSES Urban Food Systems (Hubs) Model

UNIVERSITY OF THE DISTRICT OF COLUMBIA 1851



Training Opportunities

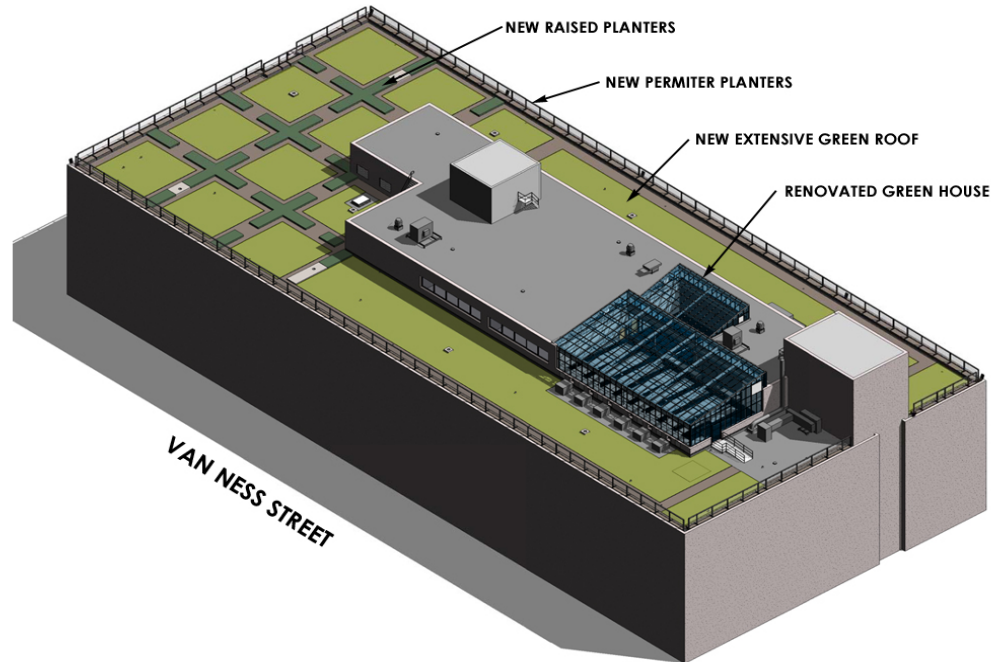
- Entrepreneurship
- Communications/Marketing
- Business Planning and Management
- Food Preparation
- Policies and Legal Processes

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

Jones & O'Hara© 2013



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



PROPOSED 3D ARIEL VIEW
GREEN ROOF ON BUILDING 44 AT THE
UNIVERSITY OF THE DISTRICT OF COLUMBIA

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***

Project Start: **March 2014**

Completion Date: **May 2015**

Urban Agriculture



Aquaponics



Specialty/Niche Crops: “Urban” Environment



East Capitol Urban Farm (pre-development)



Site Elements

Site Elements—

- Raised Beds
- Market
- Aquaponics
- Food truck
- Hoop Houses
- Green Infrastructure
- Natural playspace
- Pollinator and raingardens



Exhibit 1 – Farming Site





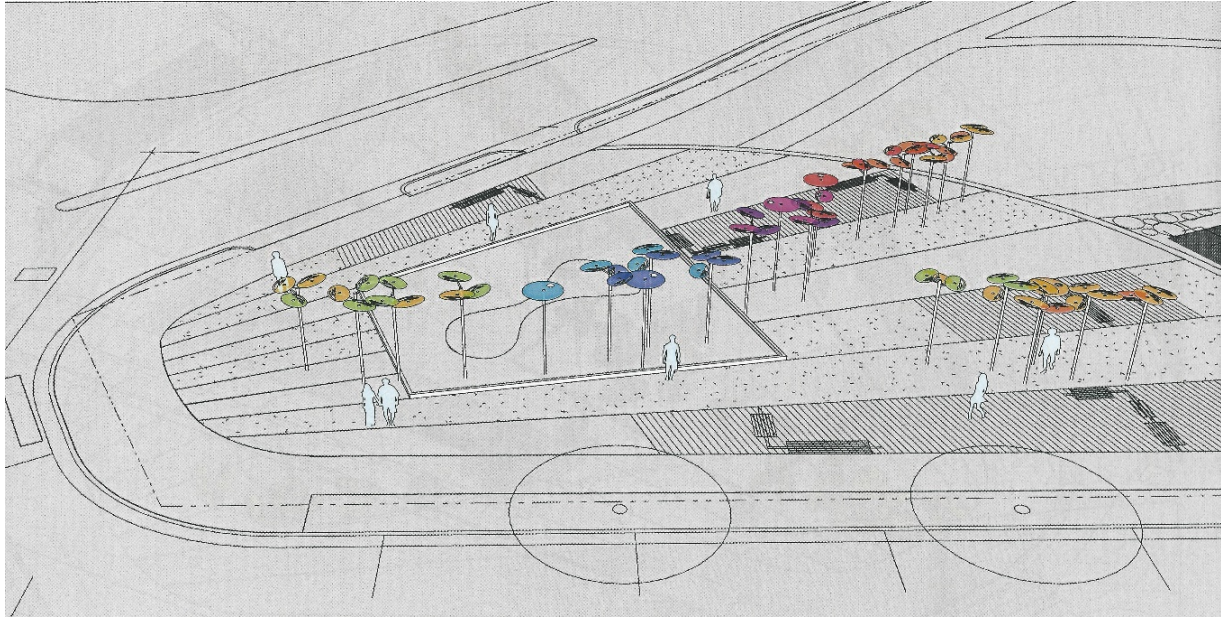
Master Site Plan (constructed Fall 2015)

Leaf Concept

(Detailed descriptions of each zone follow in the next slides)



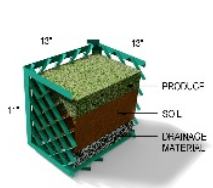
Plaza



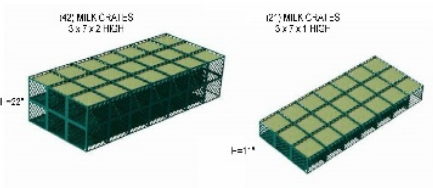
Public Art



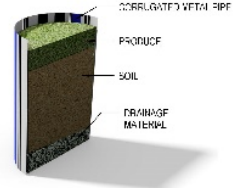
Nature Discovery



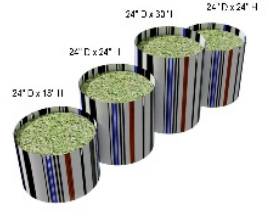
MODUL F-MILK CRATES



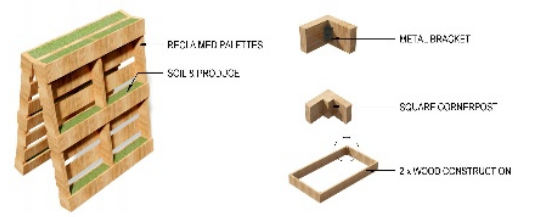
MODUL F-MILK CRATE LAYOUT



MODUL F-CORRUGATED METAL PIPE

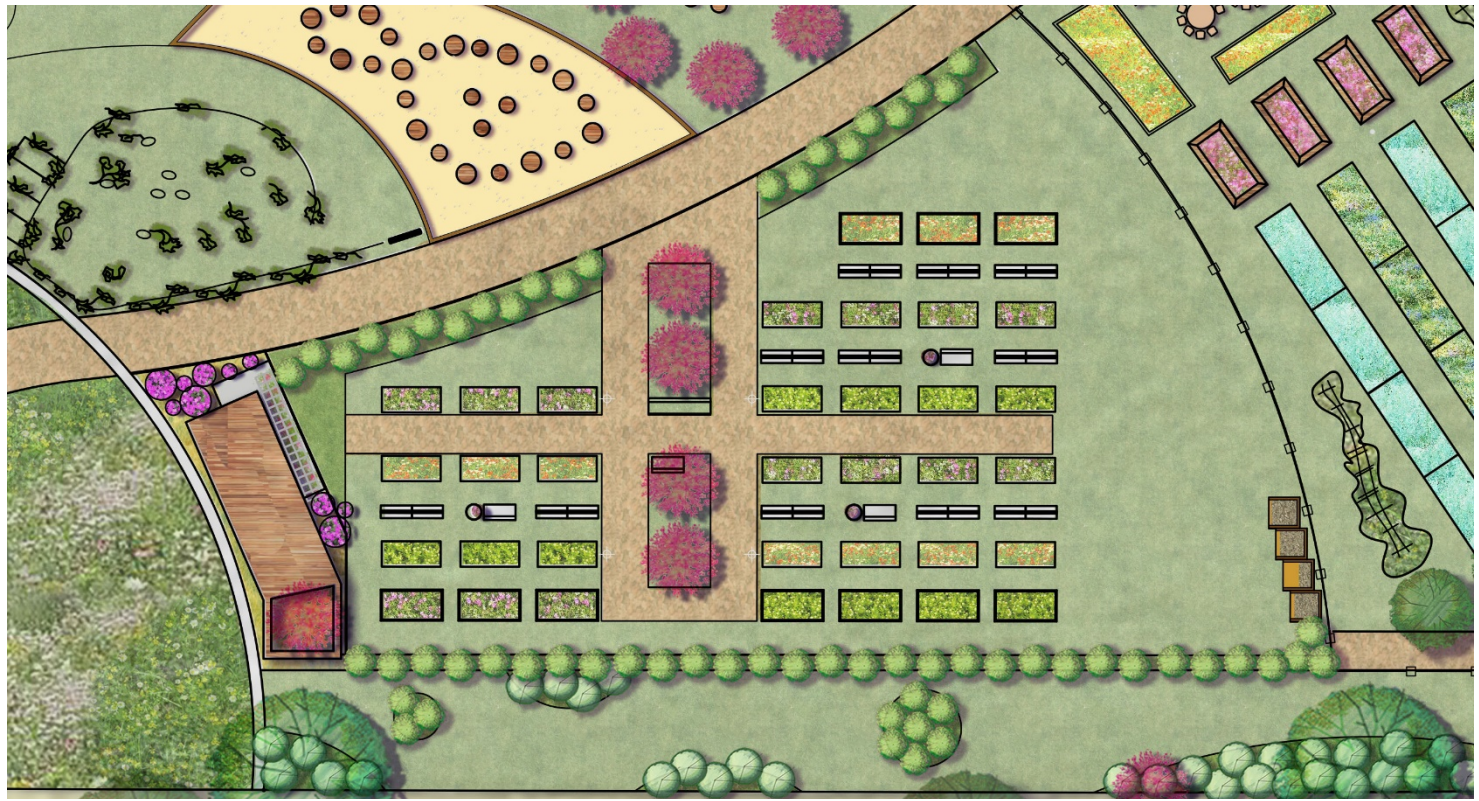


MODUL F-PIPE LAYOUT

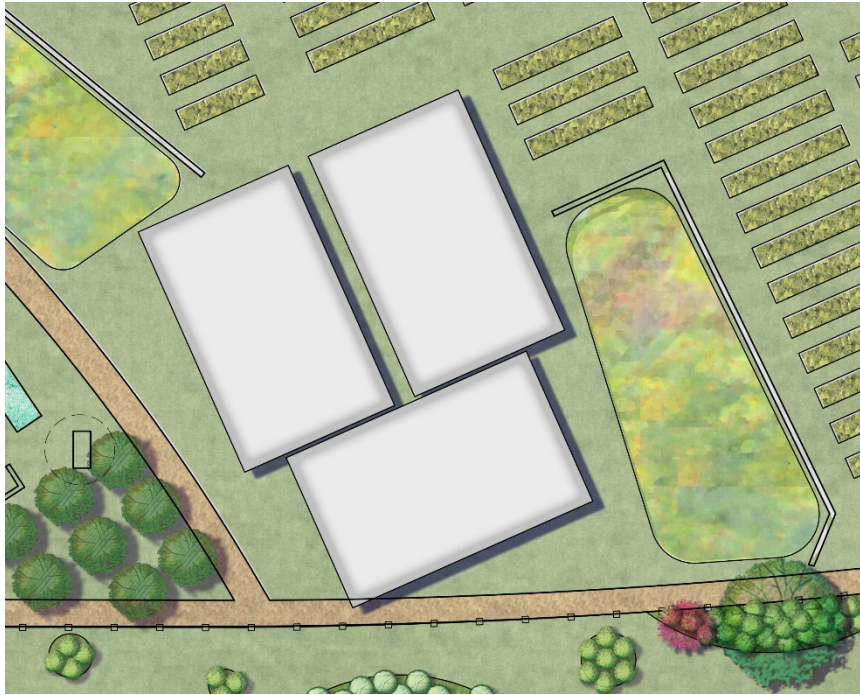


MODUL F-PALETTE A-FRAME

MODUL F-WOOD BED



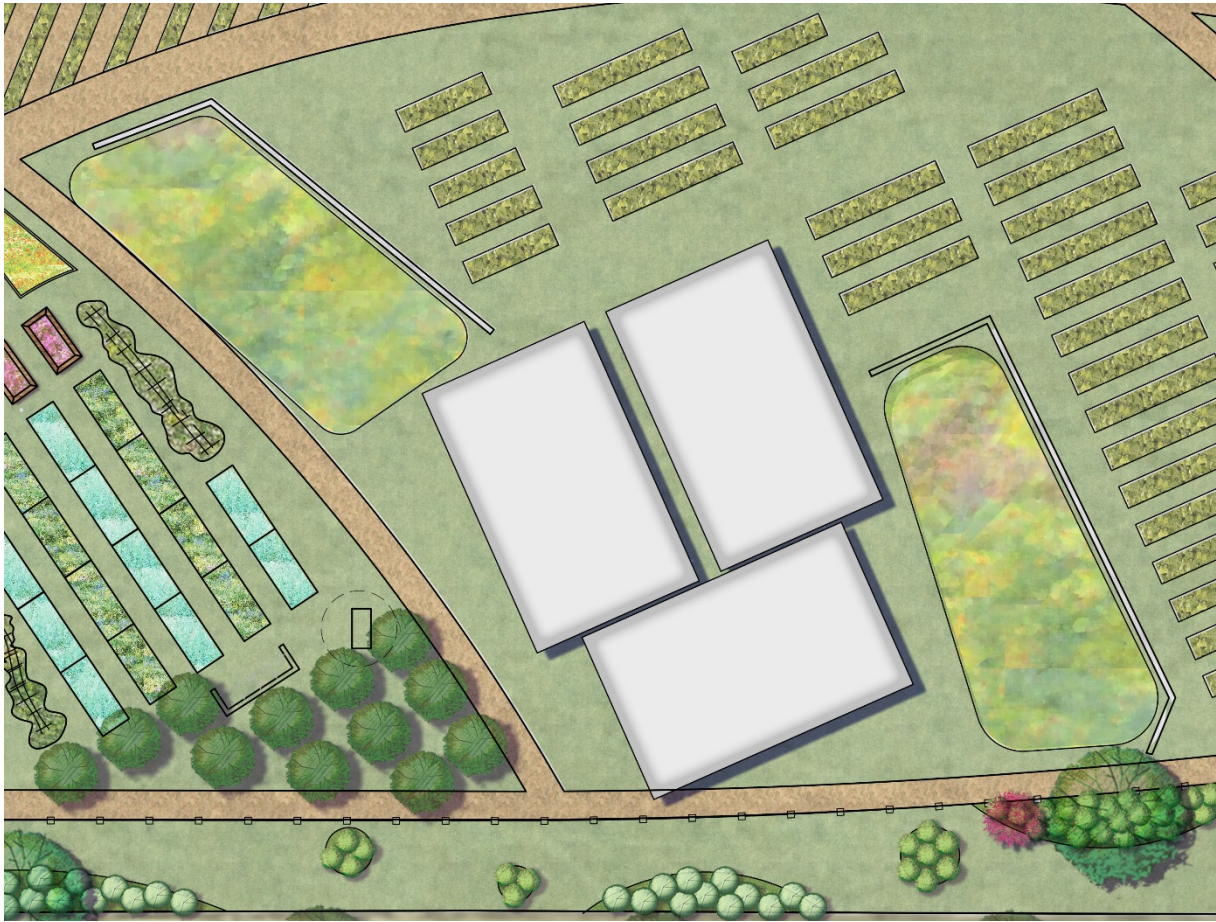
Community Gardens



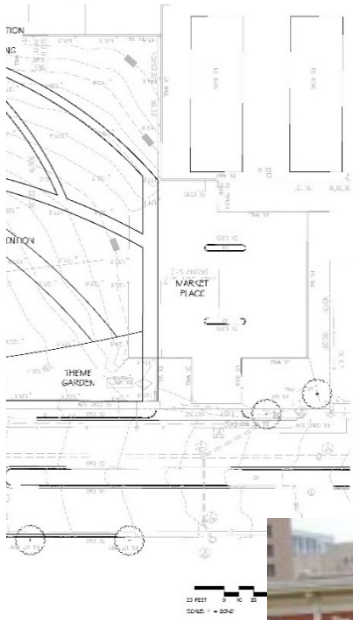
Aquaponics



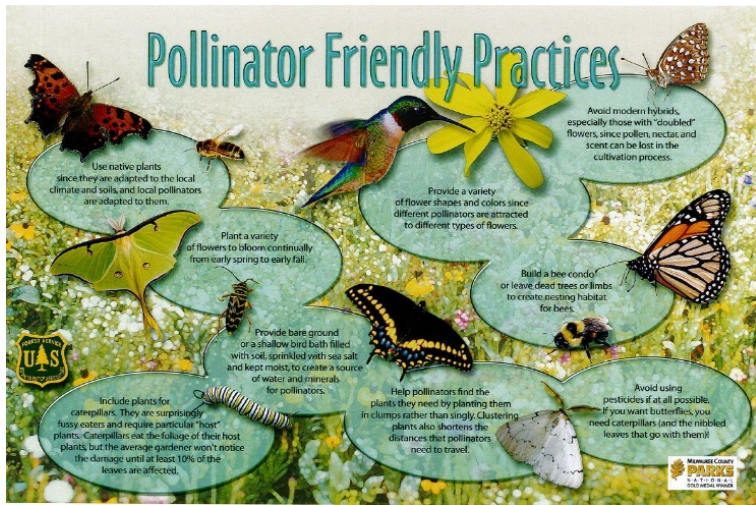
UDC Farm



Bioretention



Market Place



Theme Gardens

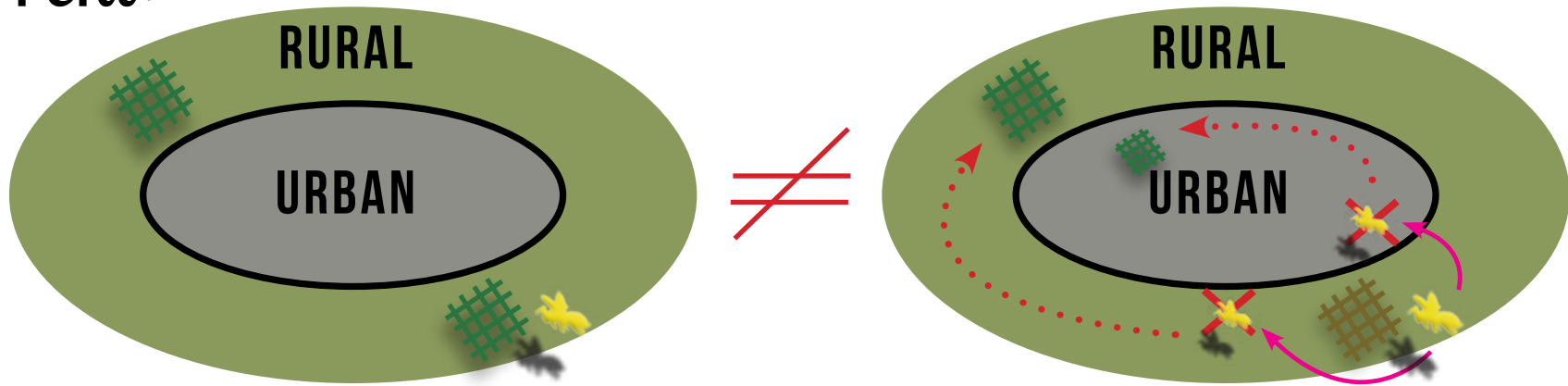


The End – and The Beginning!

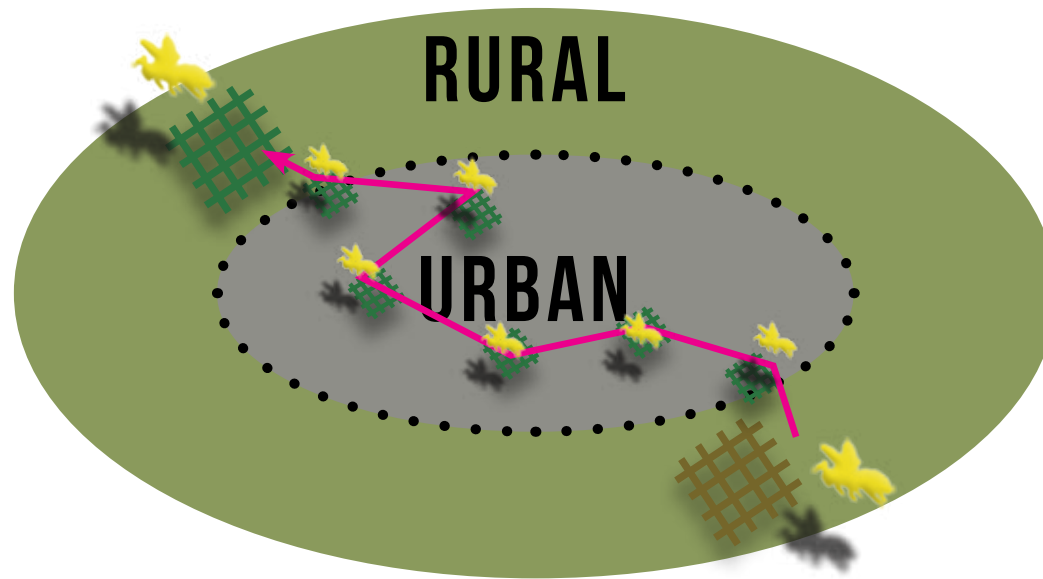


<http://ccris393.deviantart.com/art/No-Bees-No-Food-No-Future-199045358>

Current:



Proposed:



[PARK]S

+

[PARK]ING LOTS

NATIVE BEES

SAFETY

EFFICIENCY

COST



NESTING HABITS
FORAGING HABITS
BODY SIZE



[SITE DESIGN]

NESTING HABITS

FORAGING HABITS

BODY SIZE

[DISTRIBUTION]



SITE DESIGN

NESTING: 75% GROUND : 25% WOOD

FORAGING: VARIETY OF YEAR-ROUND FOOD
15-18 FT² AREA

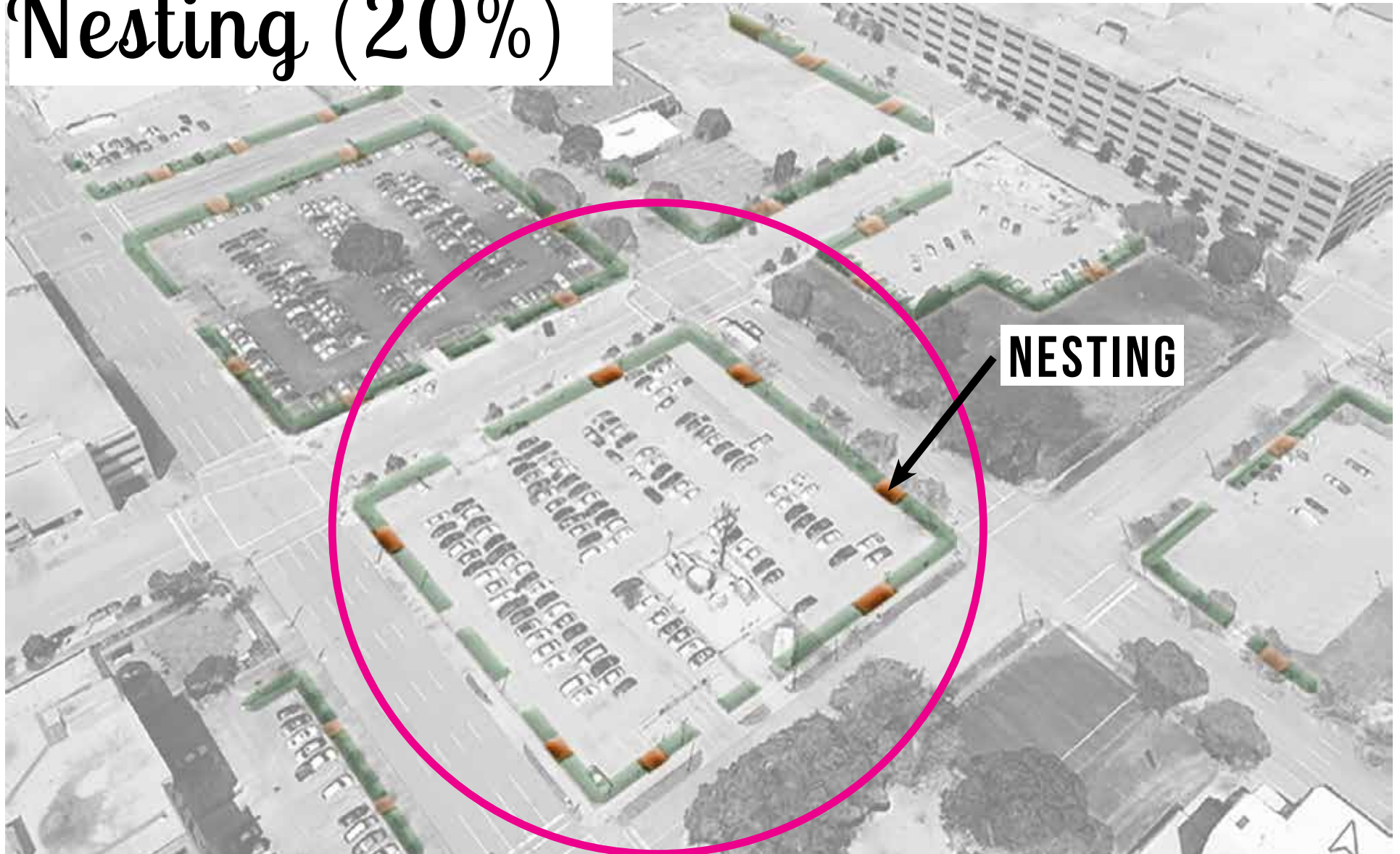
COMPOSITION: 20% NESTING : 80% FORAGING

DOWNTOWN HOUSTON



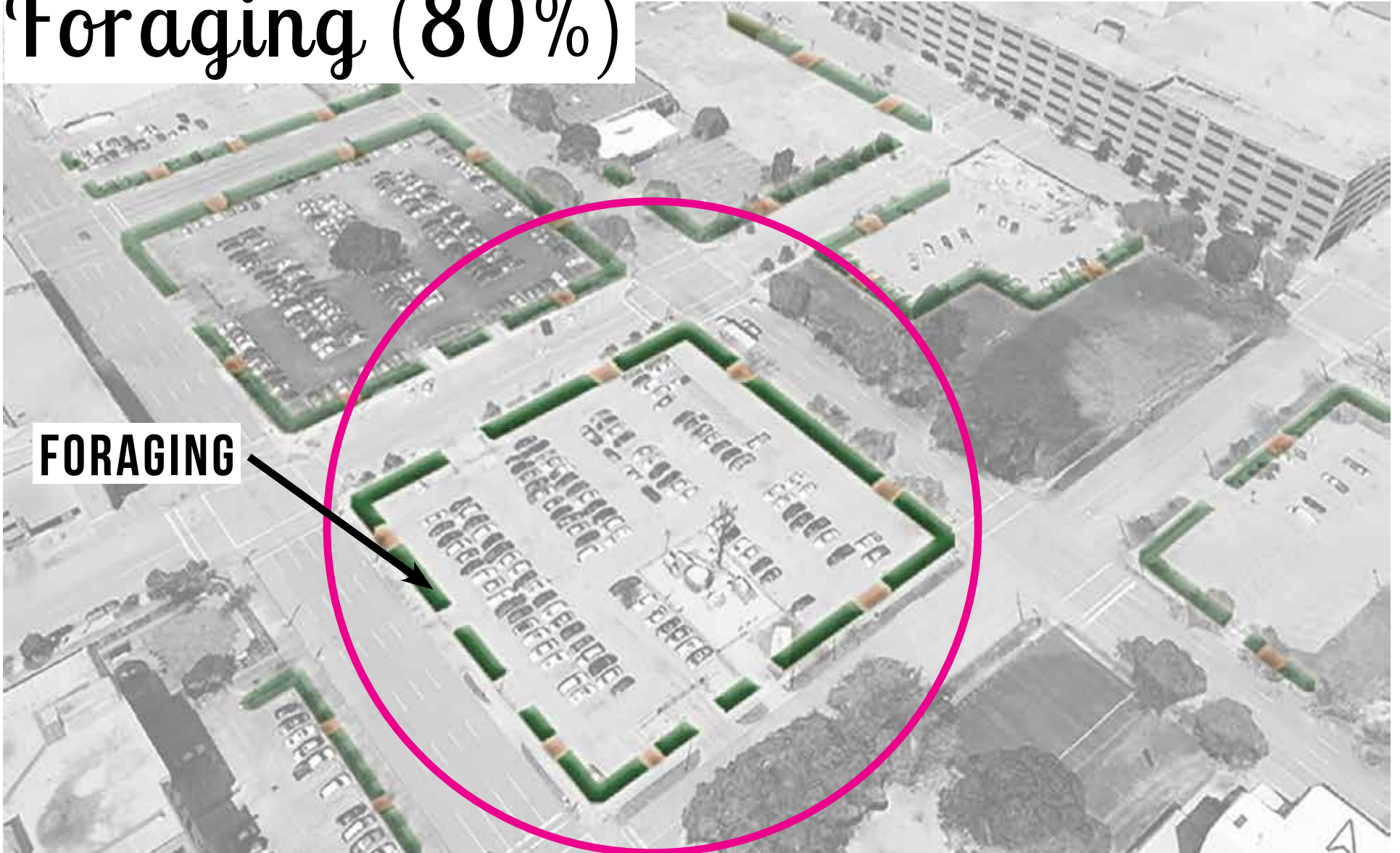
DOWNTOWN HOUSTON

Nesting (20%)



DOWNTOWN HOUSTON

Foraging (80%)



FORAGING

DOWNTOWN HOUSTON PROPOSED *Parking Lot*



[SITE DESIGN]

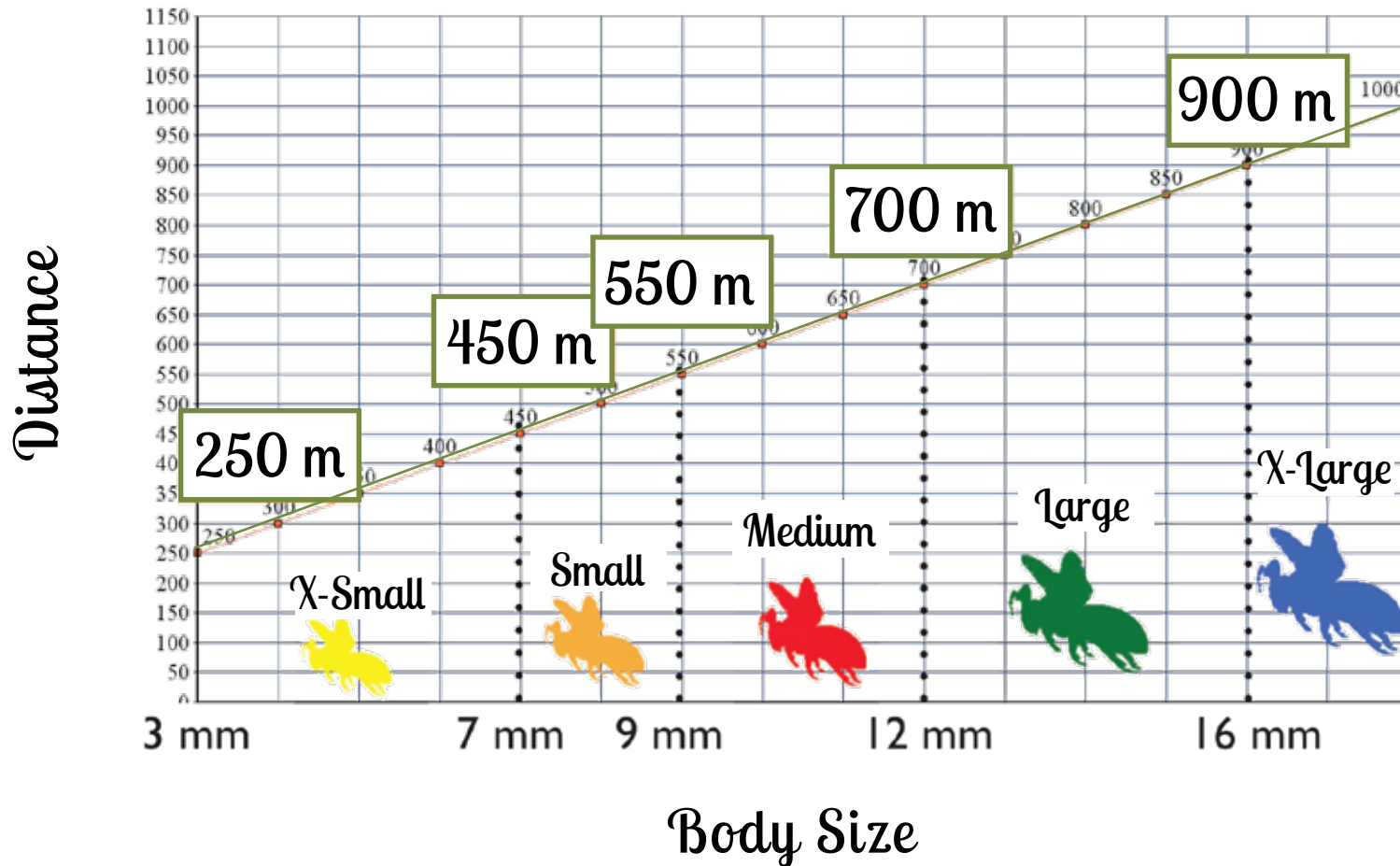
NESTING HABITS
FORAGING HABITS

BODY SIZE

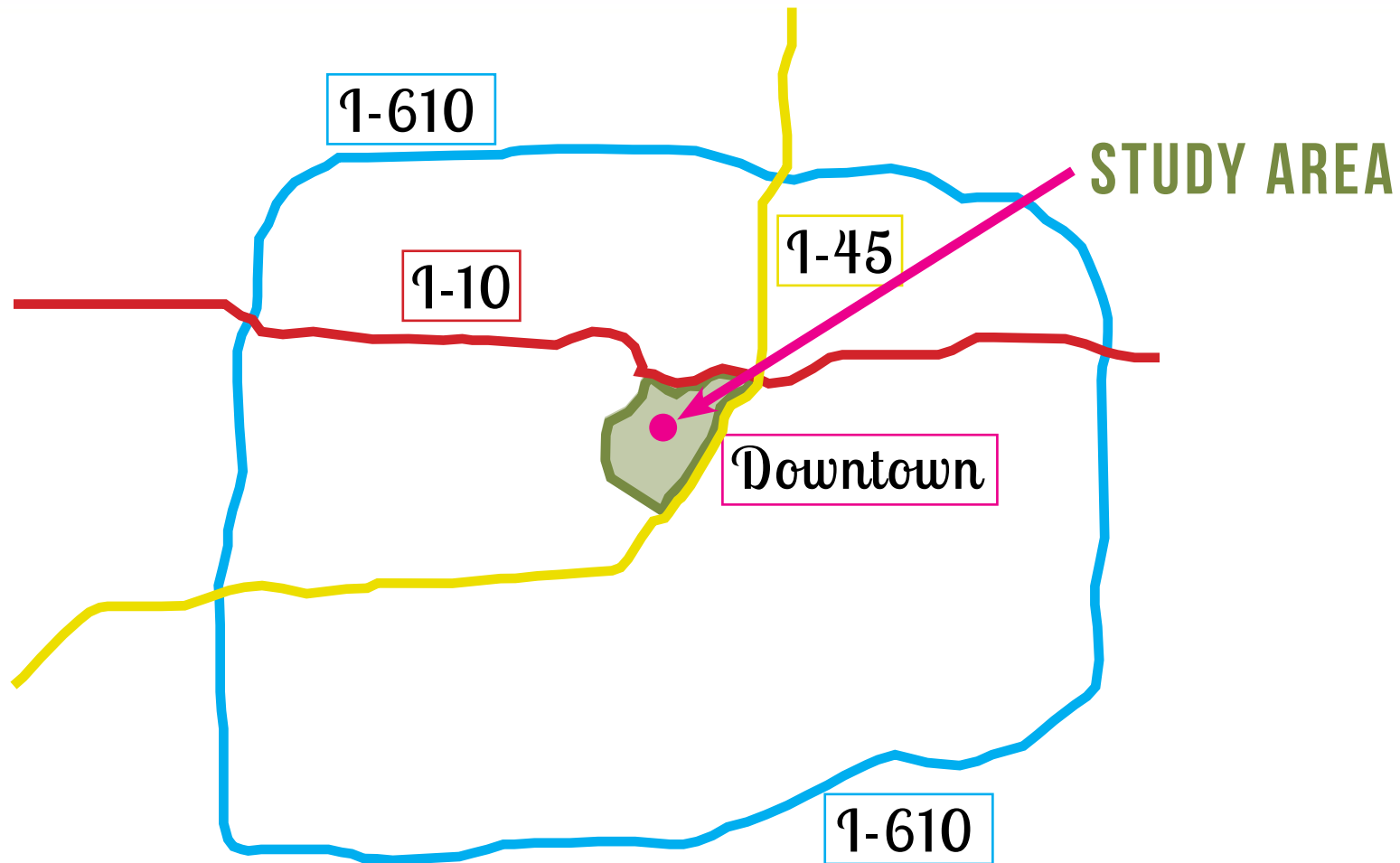
[DISTRIBUTION]



DISTRIBUTION



HOUSTON, TX



DOWNTOWN HOUSTON

Parks |
Public Green
Space



Vacant Lot

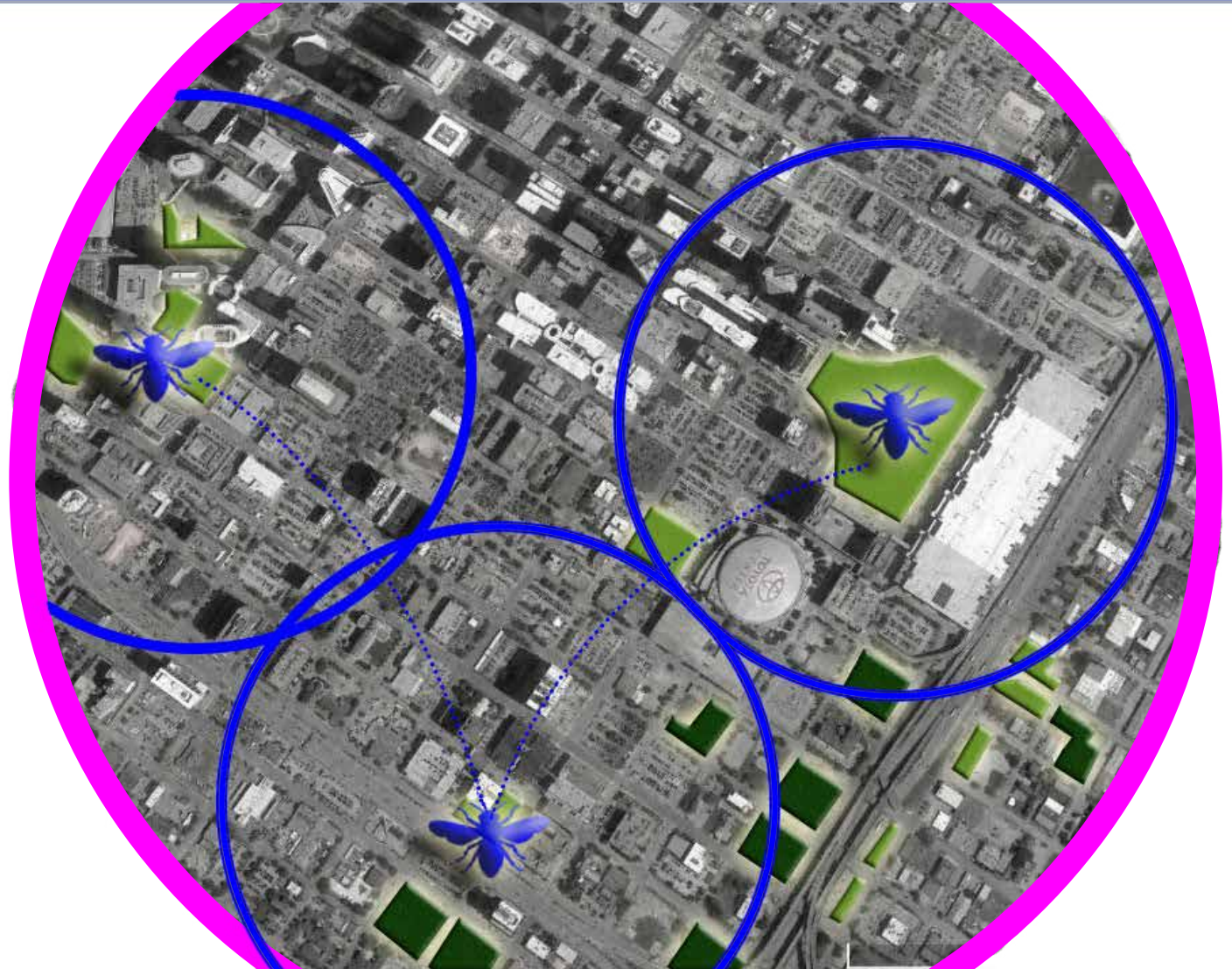


DOWNTOWN HOUSTON

X-Large
Native
Bees
(900 m)

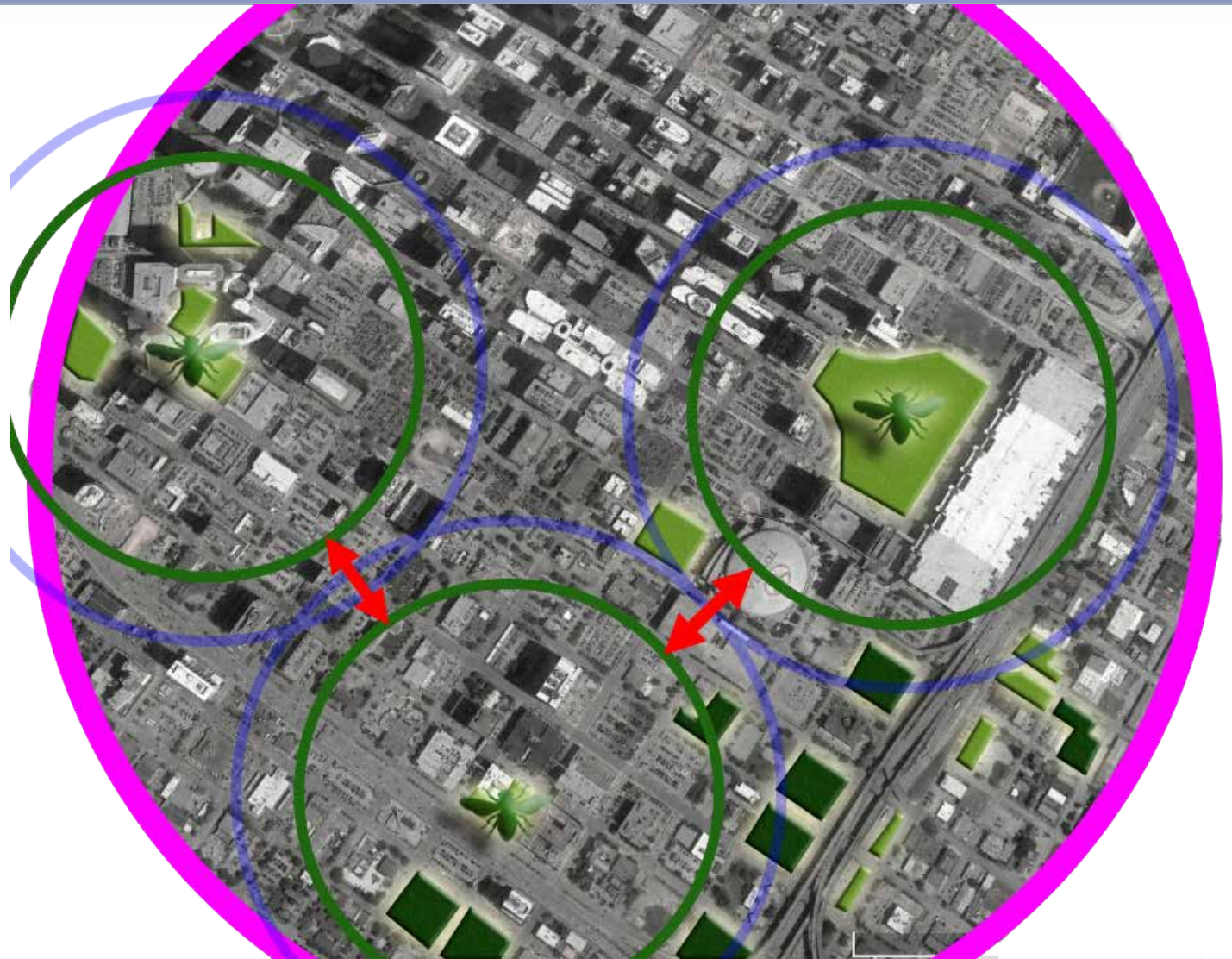
Species
Represented:

12%



DOWNTOWN HOUSTON

Large
Native
Bees
(700 m)



DOWNTOWN HOUSTON

Parks |
Public Green
Space 

Vacant Lot 

Parking Lots 



DOWNTOWN HOUSTON

Large
Native
Bees
(700 m)

Species
Represented:

36%



DOWNTOWN HOUSTON

Medium
Native
Bees
(550 m)

Species
Represented:

66%



DOWNTOWN HOUSTON

Small
Native
Bees
(450 m)

Species
Represented:

87%



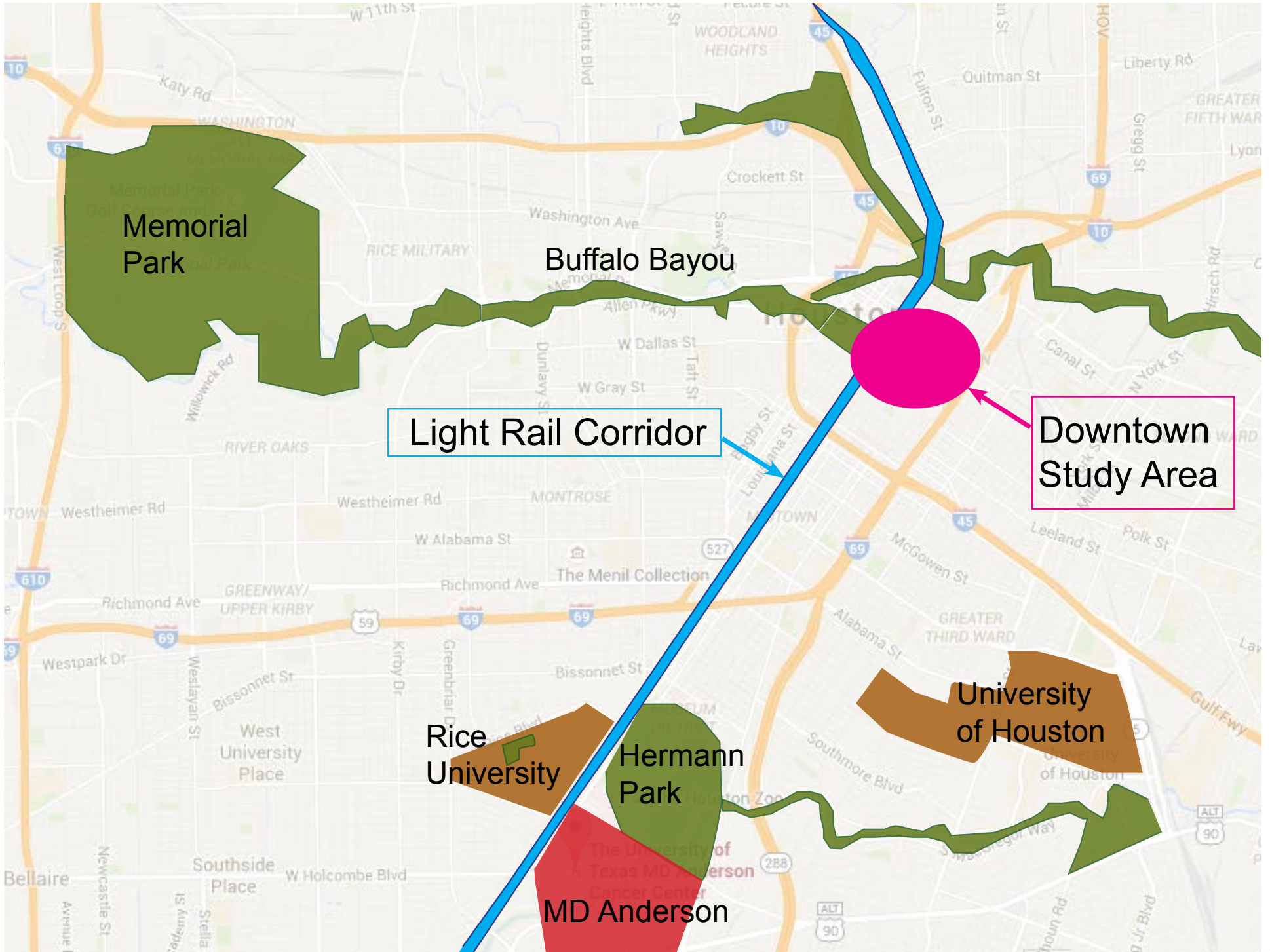
DOWNTOWN HOUSTON

X-Small
Native
Bees
(250 m)

Species
Represented:

100%





Memorial Park

Buffalo Bayou

Light Rail Corridor

Downtown Study Area

Rice University

Hermann Park

MD Anderson

University of Houston

DOWNTOWN HOUSTON

CURRENT *Light Rail* Corridor



DOWNTOWN HOUSTON PROPOSED *Light Rail* Corridor



FEDERAL | STATE GRANTS

LEED | SITES

WILDLIFE CORRIDOR HABITAT



FEDERAL POLLINATOR UPDATE

Mark Cason
Manager, Government Affairs
American Society of Landscape Architects

National Pollinator Strategy



Highways (BEE) Act



Pollinator Week 2015



AMERICAN SOCIETY OF
LANDSCAPE ARCHITECTS

Fixing America's Surface Transportation (FAST) Act



2012 ASLA Professional Award Winner
Powell Street Promenade – San Francisco, CA
Firm: Hood Design

 AMERICAN SOCIETY OF
LANDSCAPE ARCHITECTS



ASLA ADVOCACY TOOLS

Photo: Complete Street Project
Charles Street – Baltimore, MD

iAdvocate Network

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS

Home | Licensure | Community Design/Development | Small Business Growth/Development | Transportation Planning/Design | Water/Stormwater

Tweet your Legislators to Continue Active Transportation Projects

MAP-21 expires in September 2014. NOW is a good time to tell your legislators that active transportation programs should continue to be included!

[TWEET CONGRESS](#)

Advocacy News
President Obama Sends Congress First Transportation Bill - Aligns with Many ASLA Priorities
Advocacy News

Welcome to the New ASLA Advocacy Network

Tweet your Legislators to Continue Active Transportation Projects

Dear Advocates,

Our nation's current surface transportation law, *Moving Ahead for Progress in the 21st Century (MAP-21)* is set to expire in September 2014, and Congress is beginning to work on a re-write of the law. In fact, House Transportation and Infrastructure Chairman Bud Shuster (PA) recently announced that he plans to have a bill ready for Committee consideration by early June. Additionally, Senate Environment and Public Works Chairwoman Barbara Boxer (CA) has a plan to unveil the Senate's bill by early May. Also, during February's State of Union address, President Obama urged Congress to complete a new transportation bill by this summer.

Now is a good time to tell your legislators that any new transportation reauthorization bill should continue to include active transportation programs like the Transportation Alternatives Program (TAP), the Safe Routes To School (SRTS), and the Recreational Trails Program (RTP). Together, these programs are creating local jobs, jumpstarting economic development and providing affordable transportation choices for communities across the nation.

During consideration of MAP-21, ASLA and advocates like you successfully defended these programs. As a result, today, landscape architects continue to plan and design some of the most innovative active transportation projects in the nation.

Please take a moment to tell your legislators to support active transportation programs and the projects that you design, which are making communities more vibrant. Please include any local example of projects that you or colleagues have planned or designed.

Click [HERE](#) for more information on ASLA's Transportation Planning and Design advocacy priorities.

You can also [SEND A MESSAGE](#) to your members in Congress!

Before you can take action, we need to learn more about you.

* First Name

* Last Name

* Address Line 1

Address Line 2

* City

* State

* ZIP Code

* Email Address

Remember Me

[SUBMIT](#)

You can use your Twitter account to sign in to other sites and services. By signing in here, you can use GET_ENGAGE(D) without sharing your Twitter password.

Authorize GET_ENGAGE{D} to use your account?

This application **will be able to:**

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- See who you follow, and follow new people.
- Update your profile.
- Post Tweets for you.

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[Sign In](#) [Cancel](#)

This application **will not be able to:**

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cqrcengage.com
Building communities through engagement.



ASLA iAdvocate Network



**Join iAdvocate Network:
www.advocate.asla.org**



**AMERICAN SOCIETY OF
LANDSCAPE ARCHITECTS**



TWEETS **80** FOLLOWING **155** FOLLOWERS **86** FAVORITES **94** LISTS **1**

Edit

ASLA Advocacy

@ASLA_Advocacy

ASLA Advocacy serves as the voice of Landscape Architecture in promoting the legislative and political interests of our members and the profession. #iAdvocate

Washington, D.C

asla.org/advocacy

11 Photos and videos



Tweets Tweets & replies Photos & videos

 **ASLA Advocacy** @ASLA_Advocacy · 2h
A great read to get your #waterweek15 started.

landscape architects @landarchitects
How to Save Water, the Californian Way (via The Dirt) bit.ly/1GTazuw

← ↻ ★ ⋮

 **ASLA Advocacy** @ASLA_Advocacy · Apr 10
Special thanks to our advocacy partners
[@APAadvocates](#) [@AmericanForests](#) &
[@JohnFosterInc](#) for their support with ASLA

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AMERICAN SOCIETY OF
LANDSCAPE ARCHITECTS



Questions

2015 ASLA Professional Award Winner
The Lawn on D – Boston, MA
Firm: Sasaki Associates, Inc.



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Heather Holm – holm.heath@gmail.com

Dwane Jones, Ph.D. – dwane.jones@udc.edu