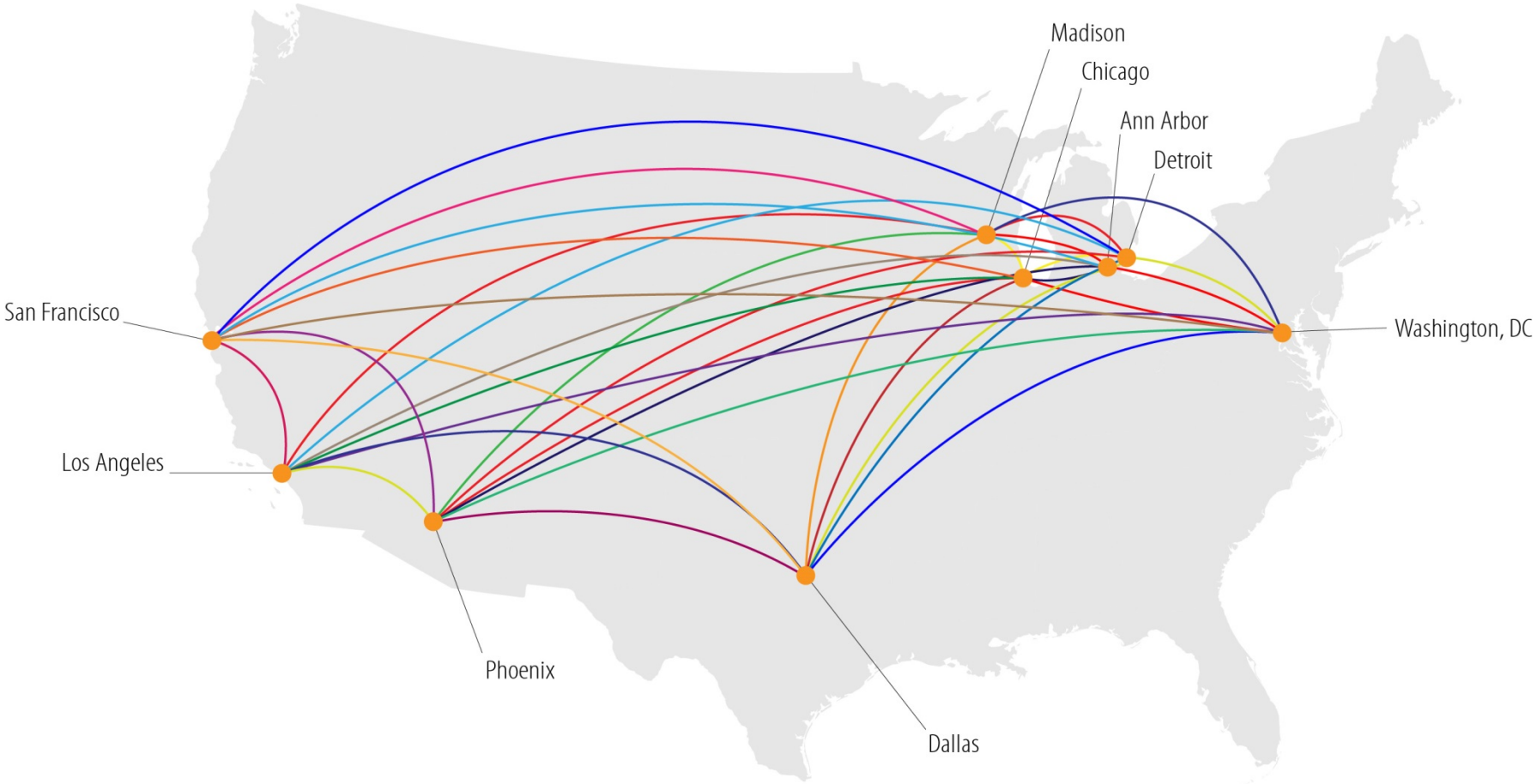
SMITHGROUPJJR

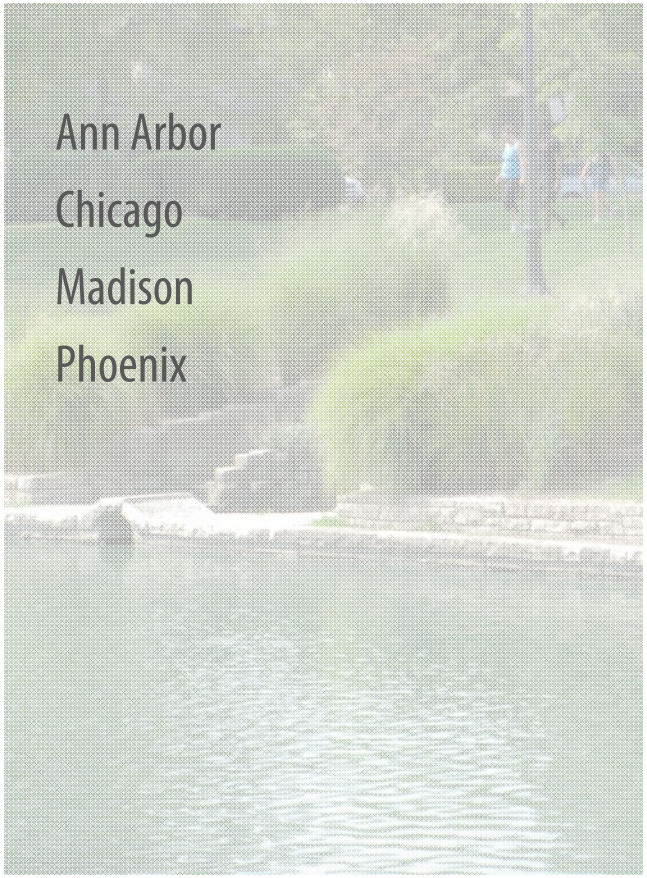
SmithGroupJJR: 160 Years of Excellence



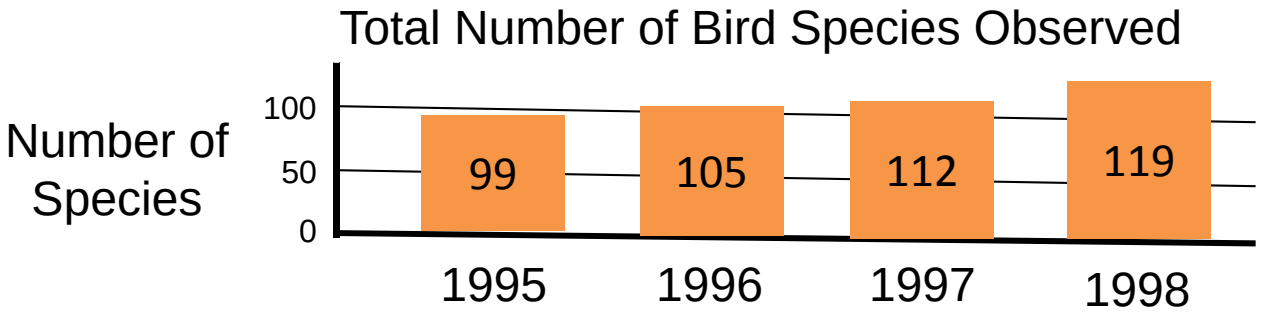
SmithGroup 1972: One Firm Two Brands

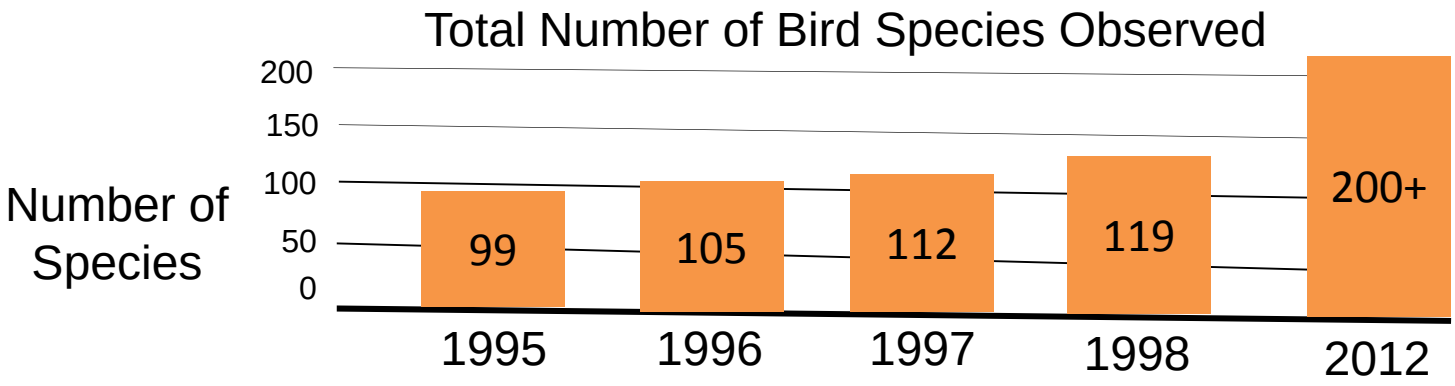
SH&G architectural practice established in Detroit in 1853

JJR practice established in Ann Arbor in 1961



Crosswinds Marsh Interpretive Preserve Wayne County, MI

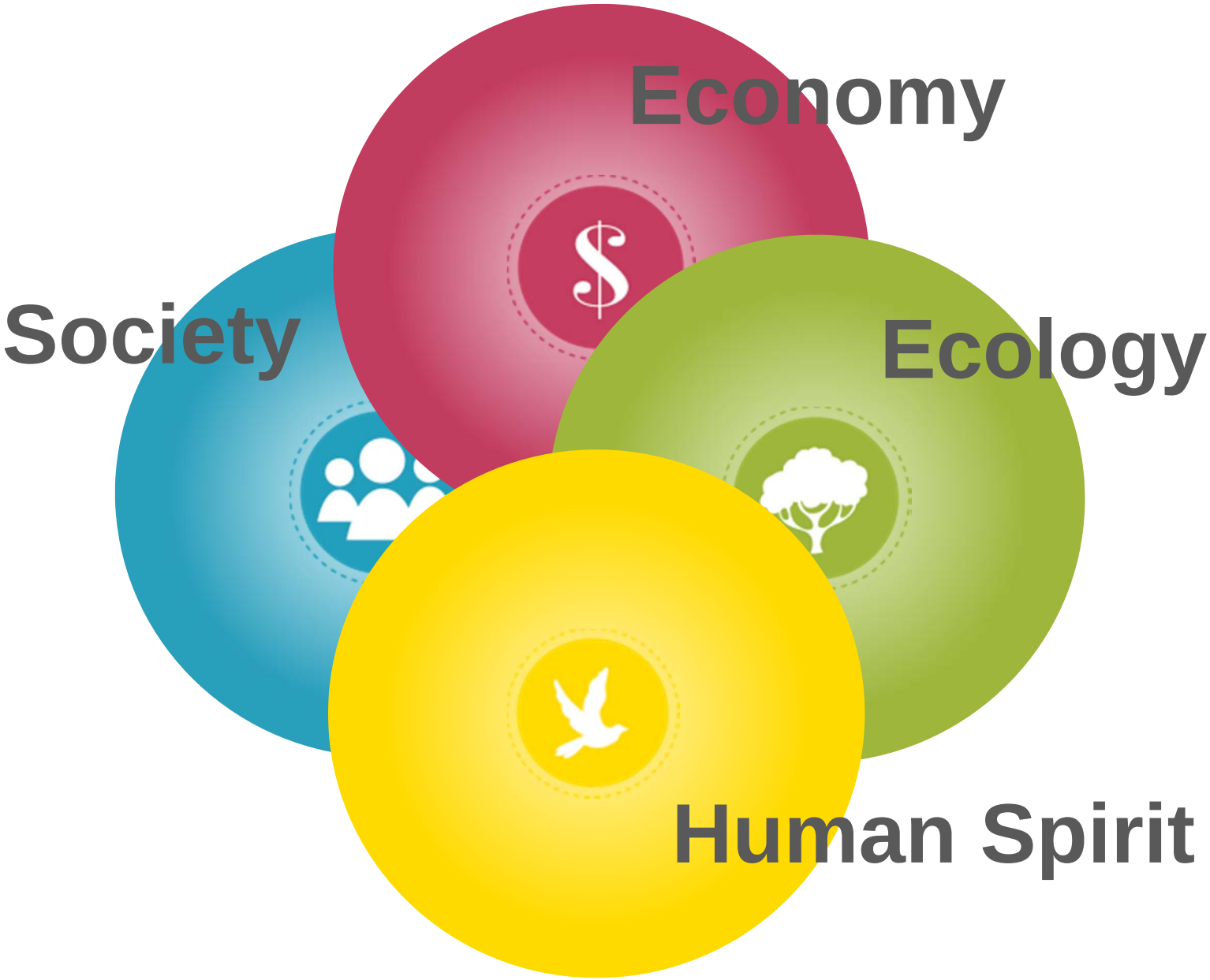

Total Number of Bird Species Observed
Number of Species
100
50
0
99
105
112
119
1995
1996
1997
1998


Total Number of Bird Species Observed
Number of Species
200
150
100
50
0
99
105
112
119
200+
1995
1996
1997
1998
2012

SmithGroup 2000

Phillip Merrill Environmental Center for Chesapeake Bay Foundation, Annapolis, MD
2000 - First LEED–NC Platinum Certification

Integrated Approach to Sustainable Design

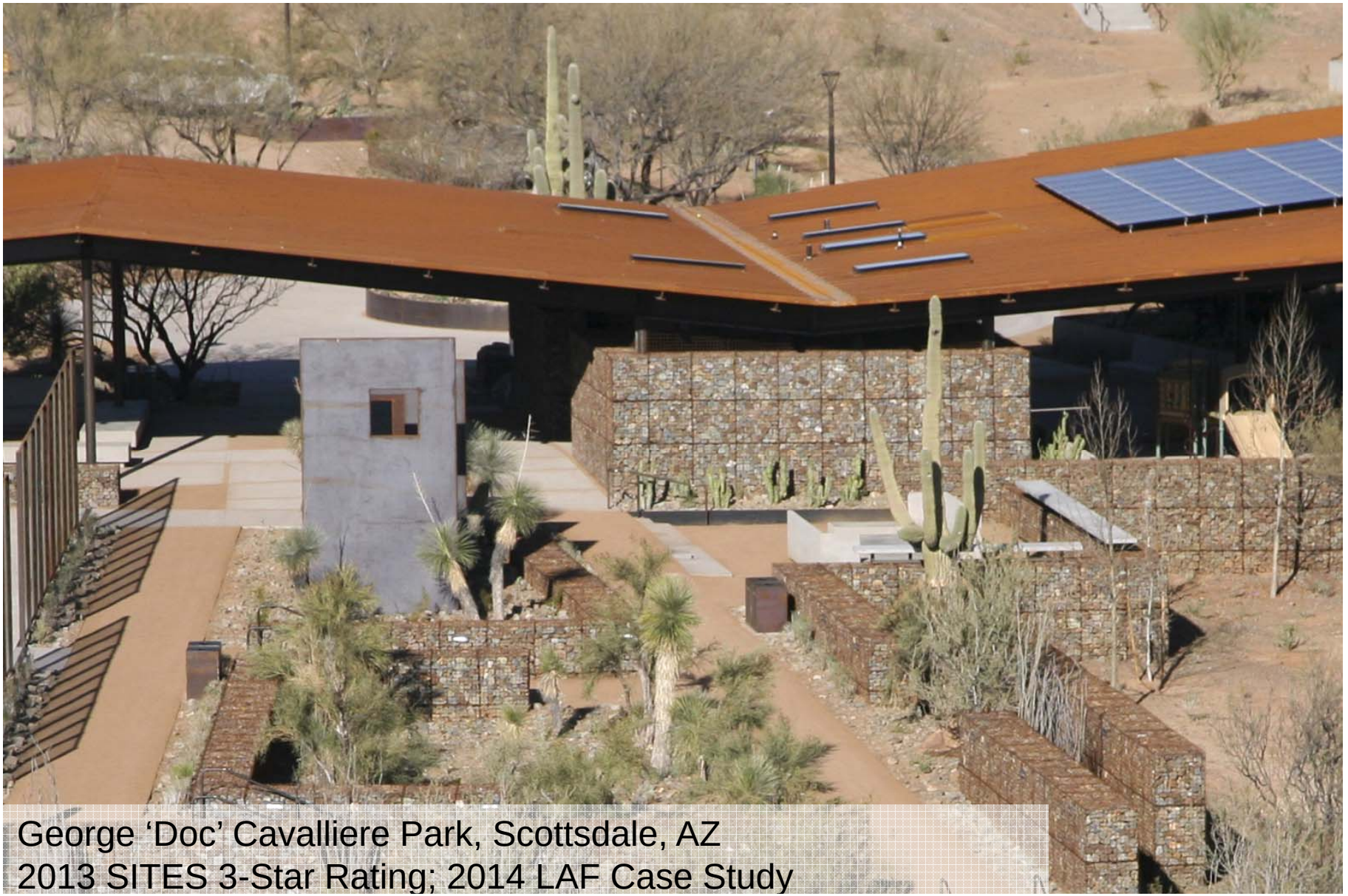


Integrated Approach to Sustainable Design

Portage Lakefront State Park, IN

LEED Gold; LAF Case Study

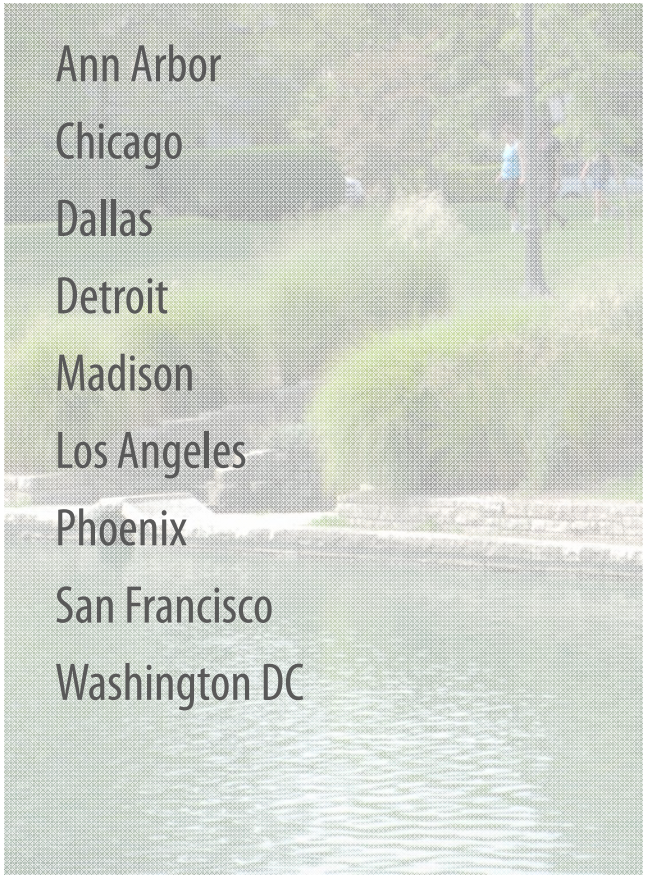
Integrated Approach to Sustainable Design



George ‘Doc’ Cavalliere Park, Scottsdale, AZ
2013 SITES 3-Star Rating; 2014 LAF Case Study

SmithGroupJJR : One Firm One Brand since 2013

Sustainability: Embedded in Firm Culture, Market Differentiator



Trends: More Stringent Stormwater Requirements

Tysons Corner Stormwater Compliance

Tysons Corner Comprehensive Plan Stormwater Goals:

- ✓ "At a minimum, ***the first inch of rainfall should be retained on-site through infiltration, evapotranspiration and/or reuse*** …"
- ✓ "***Reduction of runoff volume*** ***is the single most important stormwater design objective for Tysons***"
- ✓ "***… all available measures*** ***should be implemented to the extent possible.***"
- ✓ "***… attain LEED credit*** ***for stormwater quality / quantity***"
- ✓ "***… return water into the ground*** ***where soils are suitable or reuse it, where allowed***"
- ✓ "***… incorporate Low Impact Development into streets***"

Sc

Trends: More Stringent Stormwater Requirements

Scotts Run Station, Tyson’s Corner, VA

Trends: Living Building Challenge

7 Petals

20 Imperatives

2 Rules:

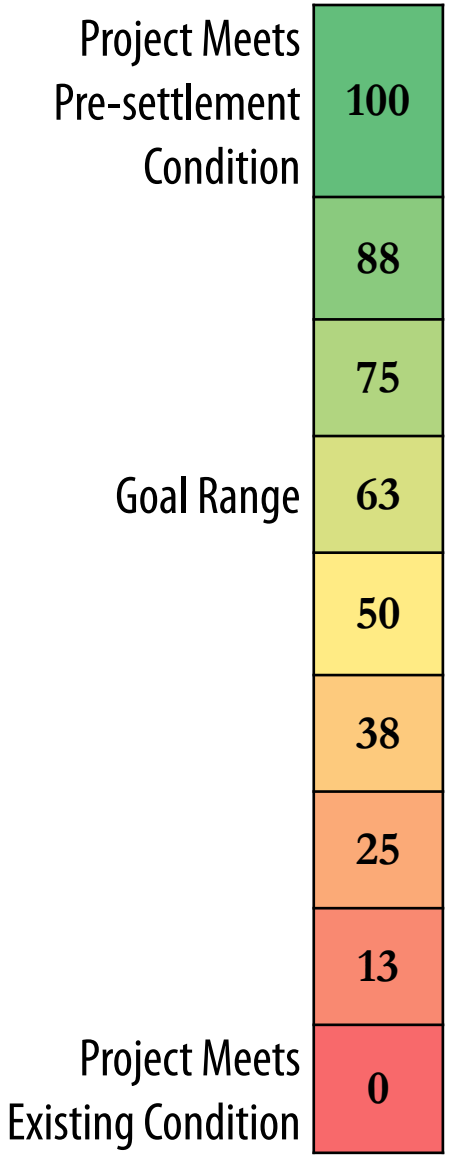
- All imperatives are mandatory within each typology
- Certification based on actual rather than modeled or anticipated performance

2013 Initiatives: LBC Commitment - Net Zero Water WaterScore Goals

- Use only water that falls on or flows through the site.
- Use water at the highest level of quality.
- Cascade water through the building as it decreases in quality.
- Return water to the biosphere safe, ready for reuse and at natural rates.

2013 Initiatives: LBC Commitment – Net Zero Water
WaterScore Tool

- **Volume** WaterScore
  - Based on the two-year, 24-hour storm water volume leaving the site
  - Design the site so that the Proposed volume is as close to the Pre-developed volume as possible, or at a minimum better than the existing volume
- **Quantity** WaterScore
  - Based on the 100-year, 24-hour storm water rate leaving the site
  - Design the site so that the Proposed rate is as close to the Pre-developed rate as possible, or at a minimum better than the existing rate
  - Increased impervious surfaces create erosive velocities and storm surges if left unchecked



2013 Initiatives: LBC Commitment – Net Zero Water

WaterScore Tool

SMITHGROUP JJR WATERSCORE

Project Name: _____

2-year, 24-hour storm (inches)[1]	1.87
100-year, 24-hour storm (inches)[1]	4.30
Hydrologic Soil Group[2]	B
Pre-Settlement Cover Condition	MEADOW
Pre-Settlement Runoff Curve Number	58
Pervious Area Runoff Curve Number	61

Criteria	pre-settlement	existing	proposed
Total Area (acres)	42.00	42.00	42.00
Impervious Area (acres)	--	22.00	18.00
Pervious Area (acres)	42.00	20.00	24.00
Calculated Water Quality Volume (acre-feet)	n/a	n/a	n/a
% Impervious	0.0%	52.4%	42.9%
Runoff Coefficient, Rv	0.05	0.52	0.44
Water Quality Volume (acre-feet)	0.33	3.41	2.85
Volume of 2-year Storm Removed			**1.60**
Volume of 2-year Storm Leaving the Site			**1.25**
Volume WaterScore			**70**

Criteria	pre-settlement	existing	proposed
Runoff Curve Number	58	80	77
Calculated 100-year Flow Rate (cfs)	n/a	n/a	n/a
Hydraulic Length (feet)	200	200	80
Time of Concentration (hrs)	0.03	0.03	0.01
100-year Flow Rate (cfs)	224.27	646.83	1202.59
Actual 100-year Release Rate			**2.00**
Quantity WaterScore			**100**

Notes:
1. Rainfall Frequency Atlas of the Midwest (link)
2. Hydrologic Soil Group
   A - well drained (sand, loamy sand, or sandy loam)
   B - moderately well drained (silt loam or loam)
   C - moderately poorly drained (sandy clay loam)
   D - poorly drained (clay-loam, silty clay loam, sandy clay, silty clay, or clay)

Rainfall Data

- 2-year, 24-hour
- 100-year, 24 hour

Pre-Settlement Cover

- Woods
- Meadow

Hydrologic Soil Group

SCS Classification

- A – well drained
- B – moderately well drained
- C – moderately poorly drained
- D – poorly drained

Drainage Areas

- Total site area
- Total impervious area

2013 Initiatives: LBC Commitment – Net Zero Water
WaterScore Lessons

Business as usual WILL NOT cut it!

- Just meeting LEED or local code will not produce a good WaterScore
- Decreasing impervious surface helps
- Infiltration helps, but if site soils are not pervious, water still ends up in storm sewer
- Must include water re-use: building/mechanical systems or irrigation

Project	Volume WaterScore	Quantity WaterScore
Dearborn Intermodal Passenger Rail Facility	23	68
Western Illinois University	13	4
Parkview Medical Center parking lot	8	8
Indiana Weslyan University Seminary	43	21
Ann Arbor City Apartments	8	100
Oakland University-Human Health Building	1	8
Delta College F-Wing	18	13
Average of All Projects	16	32

2013 Initiatives: LBC Commitment – Net Zero Water

City Water Use:

- Fire suppression
- Drinking/Food Prep
- Showers

Rainwater Use:

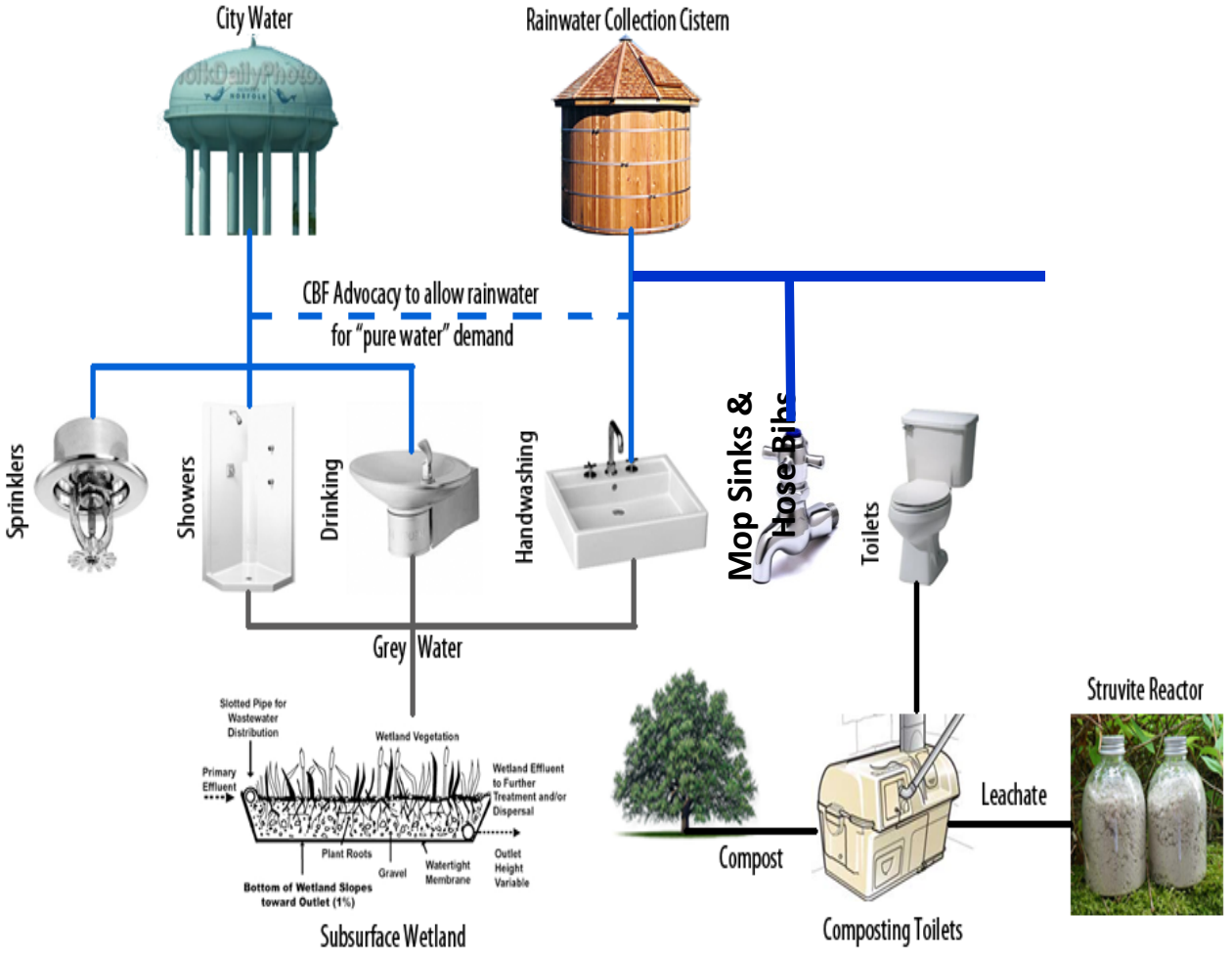
- Mop sinks
- Hose bibs
- Handwashing

Composting Toilets

- Compost
- Leachate

Graywater re-use

Wastewater Treatment Plant



Brock Environmental Center for Chesapeake Bay Foundation, Virginia Beach, VA
Targeted Net Zero Energy & Water

2013 GreenSmith Series

Net Zero and the Living Building Challenge

greensmith
forging ahead: sustainability across our practice

2013 SCHEDULE

2.22 Friday — **Brock Environmental Center: Hitting Net Zero**
Greg Mella
Cindy Cogil
Brian Coffield
Patti Gunderson
Sara Lappano
Katy Boat

4.19 Friday — **Water Neutral: a Holistic Approach to Net Zero Water**
Neal Billetdeaux
Rus Perry

6.14 Friday — **Best of Living Futures: Part I**
Jeff Stanton
Kim Swanson
Ann Cosgrove

10.11 Friday — **Best of Living Futures: Part II**
Bill Neuhoff
Wade Bevier
Jeff Frost

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