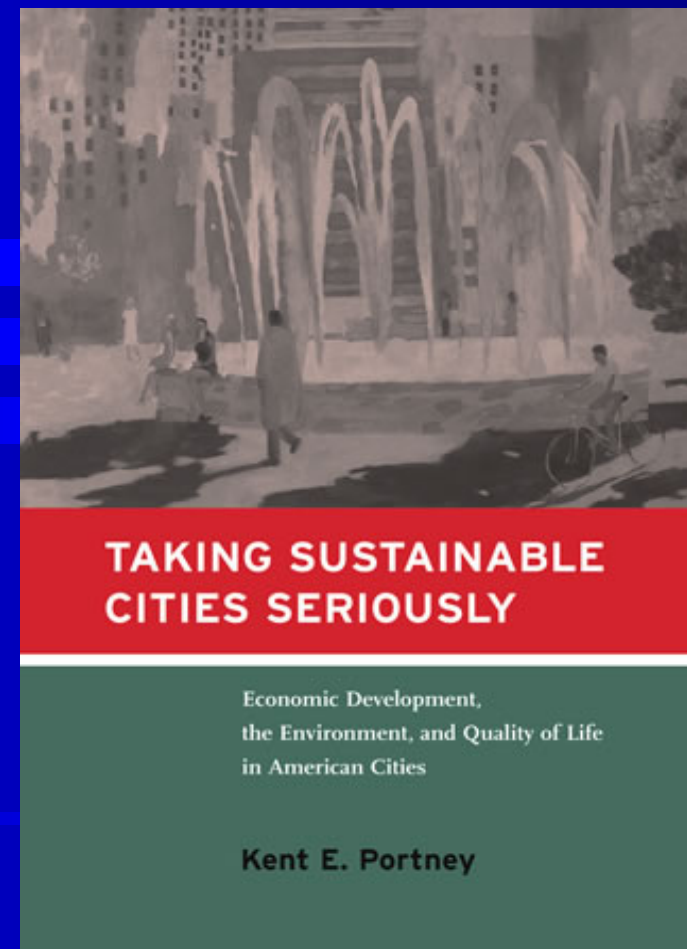


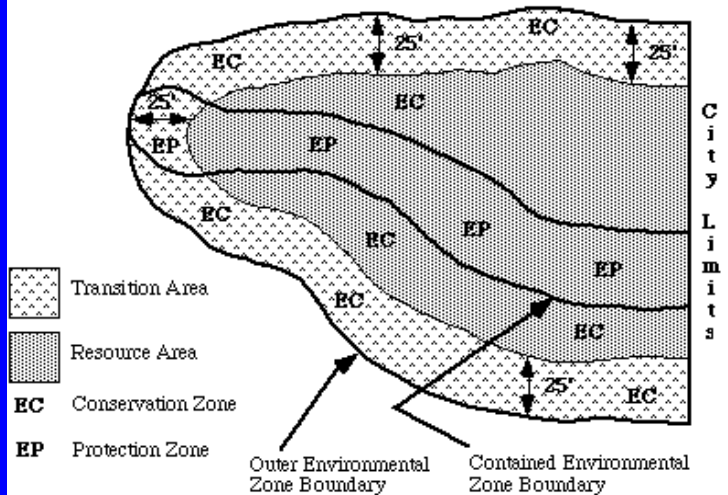
Taking Sustainable Cities Seriously: *How Cities Choose their Paths Towards Sustainability*



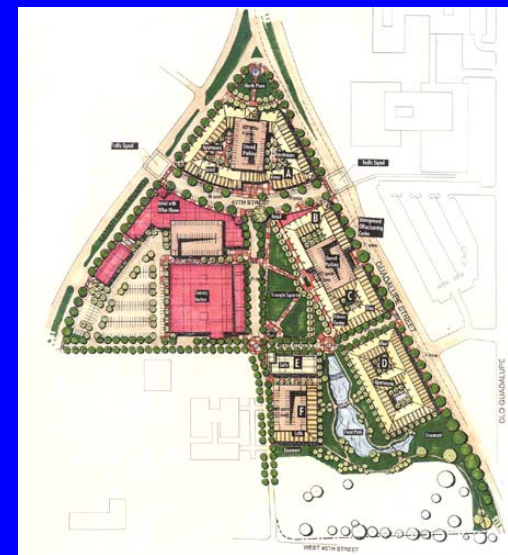
Kent E. Portney, Tufts University

**Prepared for Presentation to the
New York Academy of Sciences
New York City, April 26, 2006**

Figure 430-1
Environmental Zone Subareas



Environmental Zoning in Seattle



Eco-Village Cleveland

Brownfield redevelopment in Dallas



Jefferson North End during redevelopment

and Pittsburgh



The Abandoned Lectromelt
Electroplating Plant

Underground hazardous materials storage tank removal in San Jose



Underground storage tank removal

The Cities and Programs Studied

Chattanooga, TN
Jacksonville, FL
Orlando, FL
Tampa, FL

Sustainable Chattanooga
Jacksonville Indicators Project, Jacksonville Community Council
Sustainable Communities
The Tampa/Hillsborough County Sustainable Communities
Demonstration Project

Seattle, WA
Olympia, WA
Portland, OR
Milwaukee, WI
Santa Monica, CA
San Francisco, CA
San Jose, CA

Sustainable Seattle/The Comprehensive Plan
Sustainable City Indicators/Sustainable Community Roundtable
The Comprehensive Plan
Campaign for Sustainable Milwaukee
Santa Monica Sustainable City Program
The Sustainability Plan
Sustainable City Program (Sustainable City Major Strategy –
San Jose 2020)

Santa Barbara, CA
Austin, TX

The South Coast Community Indicators Project
Sustainable Communities Initiative and Sustainability Indicators
Project of Hayes, Travis, and Williamson Counties

Indianapolis, IN
Boulder, CO
Cambridge, MA
Boston, MA
Brookline, MA
Scottsdale, AZ
Phoenix, AZ
Tucson, AZ

IndyEcology
The Sustainability Program
Sustainable Cambridge, Cambridge Civic Forum
Sustainable Boston Initiative
Comprehensive Plan
Scottsdale Seeks Sustainability
Comprehensive Plan, Environmental Element
The Livable Tucson Vision Program

More Cities and Programs

Cleveland, OH	Sustainable Cleveland Partnership, EcoCity Cleveland
New Haven, CT	Vision for a Greater New Haven
Albuquerque	Comprehensive Plan, Sustainable Albuquerque Progress Report, The Green Alliance, Albuquerque's Environmental Story
Anchorage	Anchorage 2020 Comprehensive Plan; Healthy Anchorage Indicators Project
Atlanta	Comprehensive Development Plan
Baltimore	Plan Baltimore
Buffalo	The Comprehensive Plan; Green Gold Initiative
Chicago	Chicago Area Central Plan
Denver	Denver Comprehensive Plan 2000
Kansas City	Metro Kansas City Outlook; The Environmental Management System
Grand Rapids	The Grand Rapids Master Plan 2002
Lansing/E. Lansing	Urban Options – Sustainable Lansing
Los Angeles	The General Plan
Minneapolis	The Sustainability Plan
New York	Consolidated Plan 2002; Social and Environmental Indicators Project; Sustainable New York City
Pittsburgh	Sustainable Pittsburgh
Sacramento	Sacramento General Plan
San Diego	Sustainable Communities Program; City of Villages General Plan
St. Louis	Sustainable Neighborhood Program
Washington, D.C.	The Comprehensive Plan; Sustainable Washington Alliance

The Elements of Taking Sustainable Cities Seriously

Sustainable Indicators Project

- 1. Indicators project active in last five years**
- 2. Indicators progress report in last five years**
- 3. Does indicators project include “action plan” of policies/programs?**

"Smart Growth" Activities

- 4. Eco-industrial park development**
- 5. Cluster or targeted economic development**
- 6. Eco-village project or program**
- 7. Brownfield redevelopment (project or pilot project)**

Land Use Planning Programs, Policies, and Zoning

8. Zoning used to delineate environmentally sensitive growth areas

9. Comprehensive land use plan that includes environmental issues

10. Tax incentives for environmentally friendly development

Transportation Planning Programs and Policies

11. Operation of public transit (buses and/or trains)

12. Limits on downtown parking spaces

13. Car pool lanes (diamond or HOV lanes)

14. Alternatively fueled city vehicle program

15. Bicycle ridership program

Pollution Prevention and Reduction Efforts

16. Household solid waste recycling

17. Industrial recycling

18. Hazardous waste recycling

19. Air pollution reduction program (i.e. VOC reduction)

20. Recycled product purchasing by city government

21. Superfund site remediation

22. Asbestos abatement program

23. Lead paint abatement program

Energy and Resource Conservation/Efficiency Initiatives

24. Green building program

25. Renewable energy use by city government

26. Energy conservation effort (other than Green building program)

27. Alternative energy offered to consumers (solar, wind, biogas, etc.)

28. Water conservation program

Organization/Administration/Management/Coordination/Governance

29. Single government/nonprofit agency responsible for implementing sustainability

30. Part of a citywide comprehensive plan

31. Involvement of city/county/metropolitan council

32. Involvement of mayor or chief executive officer

33. Involvement of the business community (e.g. Chamber of Commerce)

34. General public involvement in sustainable cities initiative (public hearings, "visioning" process, neighborhood groups or associations, etc.)

Top Twenty-Four Cities' Scores on the "Taking Sustainable Cities Seriously" Index

Seattle	30
Denver	29
Albuquerque	27
Los Angeles	27
Minneapolis	27
Boulder	26
San Jose	26
Scottsdale	26
Chicago	26
Portland	25
Santa Monica	25
San Diego	25

San Francisco	23
Kansas City	22
New York City	22
Sacramento	21
Tampa	19
Chattanooga	18
Tucson	18
Anchorage	18
Washington DC	18
Austin	17
Baltimore	17
Buffalo	17

Bottom Cities' Scores on the "Taking Sustainable Cities Seriously" Index

Cambridge	15
Jacksonville	15
Phoenix	15
Boston	14
Brookline (MA)	14
Cleveland	14
Atlanta	14
Pittsburgh	14
Grand Rapids	14

St. Louis	12
Orlando	11
Santa Barbara	10
Milwaukee	9
Indianapolis	9
New Haven	8
Olympia	8
Lansing/East Lansing	7

Correlations Between the Index of Taking Sustainability Seriously and Demographic Characteristics in Forty-One Cities

Independent Variable	Correlation Coefficient	Significance
Total Population, 2000	.238	.13
Total Population, 1990	.233	.14
Total Population, 1980	.220	.17
Population Change %, 1980 to 1990	.181	.25
Population Change %, 1980 to 2000	.215	.18
Total Land Area (square miles)	.078	.63
Population Density (Population per sq mile)	.147	.36

Correlations Between the Index of Taking Sustainability Seriously and Local Resource Characteristics in Forty-One Cities

Independent Variable	Correlation Coefficient	Significance
Median Family Income, 1990	.184	.25
Poverty Rate, 1990	-.158	.32
Average Unemployment Rate, 1994-99	.032	.84
Median House Value, 1990	.234	.14
Total City Government Spending, 1997-98	.129	.42
Per Capita Government Spending, 1997-98	.026	.87

Correlations Between the Index of Taking Sustainability Seriously and Population and Employment Characteristics in Forty-One Cities

Independent Variable	Correlation Coefficient	Significance
Percent African American, 2000	-.355	.02
Percent African American, 1990	-.294	.06
Percent Hispanic, 2000	.289	.07
Percent Hispanic, 1990	.325	.04
Percent Under 18 Years Old, 1990	-.242	.13
Percent Over 65 Years Old, 1990	-.199	.21
Median Age of the Population, 1990	.419	.00
Percent High School Graduates , 1990	.263	.09
Percent Employed in Manufacturing, 2000	-.014	.93
Percent Employed in Service Sector, 2000	-.354	.02

Correlations Between the Index of Taking Sustainability Seriously and Measures of Environmental Predisposition in Forty-One Cities

Independent Variable	Correlation Coefficient	Significance
Percent Driving Alone to Work, 1990	-.024	.88
Percent Commuters Using Public Trans '90	.059	.71
Days PSI 51+ in 1994	.373	.02
Average PSI during 1994	.395	.01
Total Government Spending on Environment, 1997-98	.249	.12
Per Capita Spending on Environment, 1997	.304	.05
Location on the West Coast (CA, OR, WA)	.261	.10
Avg % Democratic Pres Vote, 1996-00 +	.022	.91
Percent Christian church membership	-.457	.00

+ Based on data for 26 of 41 cities

OLS Regression Results Showing Correlates of the Taking Sustainability Seriously Index

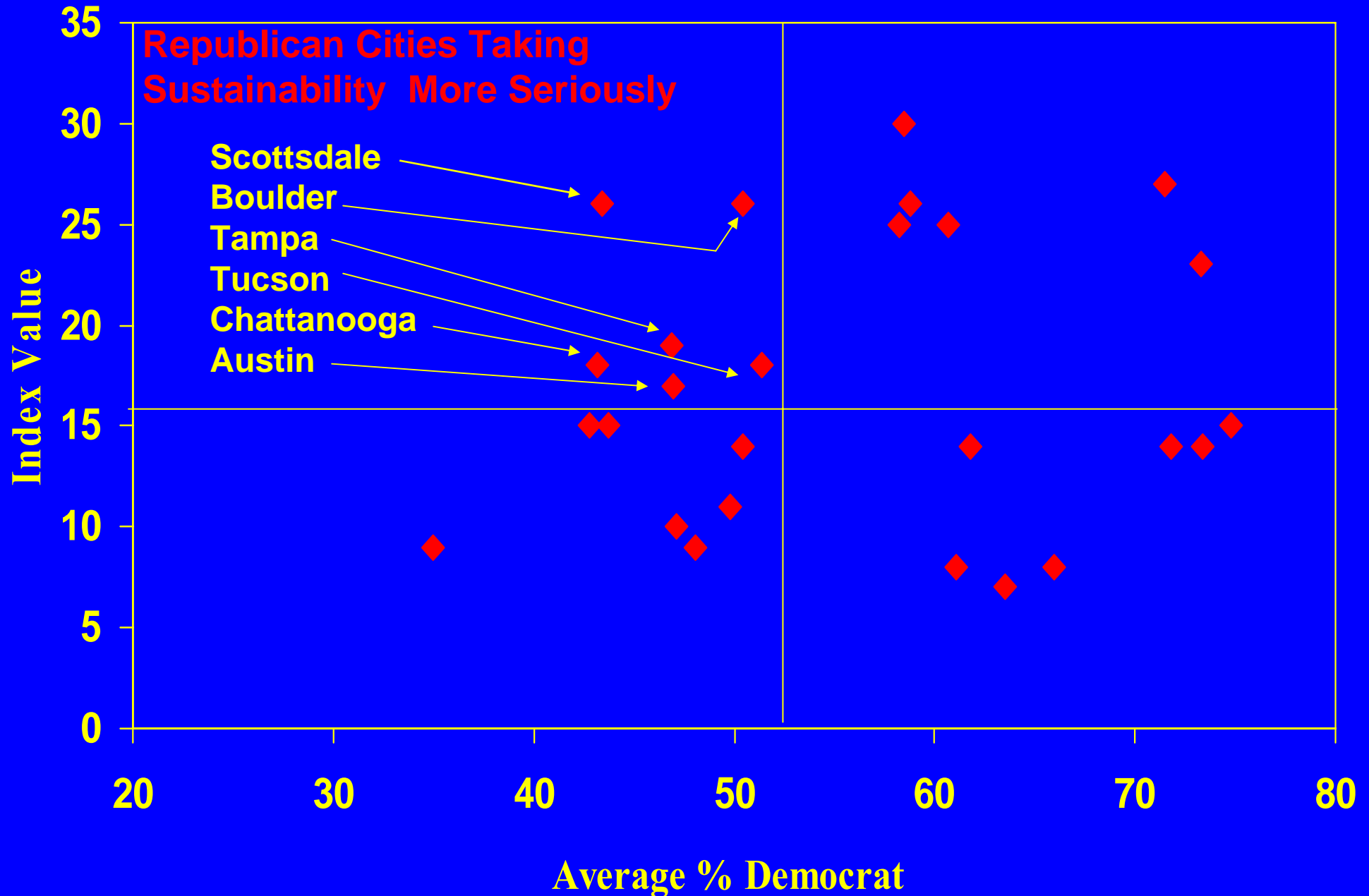
	β	SE β	b	T	Significance
Percent African American, 2000	-.30	.080	-.085	-.376	.709
Median Age, 1990	.576	.401	.205	1.430	.160
Percent Hispanic, 1990	.19	.090	.306	2.059	.048
Percent Employed in Service Sector, 2000	-1.166	.426	-.525	-2.730	.010
Poverty Rate, 1990	.532	.250	.478	2.132	.041
Percent Christian Population, 2004	-.701	.354	-.315	-1.981	.057
Constant	55.85	30.80	----	1.810	.079

Multiple R .705 R Square .498 Adjusted R Square .403

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	6	793.3	132.2
Residual	32	801.0	25.0
F = 5.3		Significance of F = .00	

Plot of Average % Democratic Vote and the Index of Sustainability



Where Does the Research Go From Here?

- **More cities adopt sustainability programs each year – expand the database**
 - Oakland, Cincinnati, Columbus, and others
- **Better theoretical explanations**
- **Broader array of comparison cities**
- **More elements of what it means to take sustainability seriously – including:**
 - Open space programs
 - Pesticide reduction programs
 - Environmental and social justice components

A Research Agenda

- **Analysis of the “economics” of sustainability**
 - What are the costs of the programs? (Green Building)
 - How much revenue do cities spend and save?
 - What does the pursuit of sustainability do to growth, especially personal income growth?
 - What do cities give up (opportunity costs)?
- **Analysis of the “benefits” of sustainability programs**
 - How much does the environment actually improve?
 - How much more “livable” do people think the city is?

The Benefits Side

- **What do all these programs and policies accomplish in terms of tangible results?**
 - **Does the “ecological footprint” of the city get smaller over time?**
 - **Does the quality of the environment improve over time?**
 - **Water quality?**
 - **Air quality?**
 - **Flows of toxic materials and wastes?**
 - **Ecological diversity?**

Results?

- **Does environmental and social inequity decline?**
- **Is there an aggregate improvement in energy usage? Energy efficiency? P/C electric usage? P/C gasoline consumed?**
- **Is there aggregate improvement in other natural resource usage?**
- **Is there improvement in public health?**