Remaking Cities Congress

Pittsburgh, PA

October 16-18, 2013

Major Partners

Remaking Cities Institute,
Carnegie Mellon University

The American Institute
of Architects

‘Straw’ Infrastructure Manifest

Revisioning infrastructure investments for remaking Post-industrial cities

Vivian Loftness

Remaking Cities Congress

October 16-18, 2013

1. Commit to “No New Land”

Repurpose sprawl infrastructure capital

COSTS OF SPRAWL (Urban Ecology 1995)

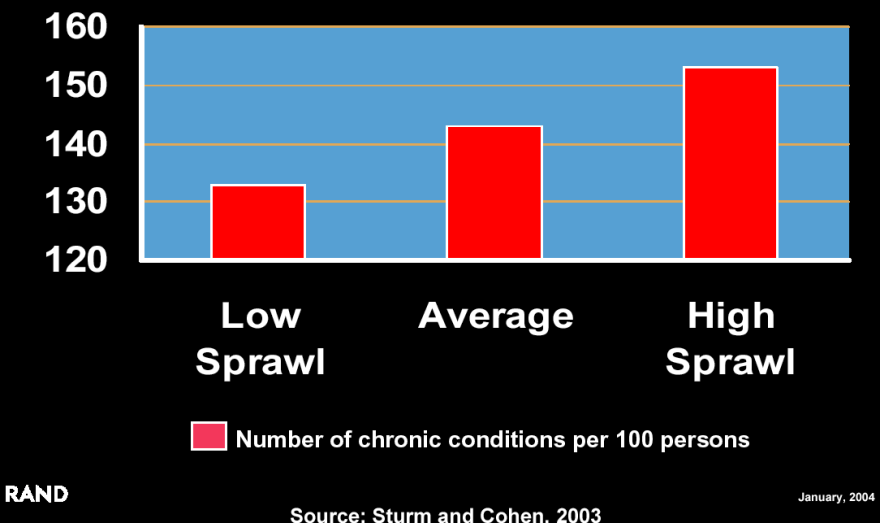
	Suburbs	**Infill**
Streets/roads	$3,000	$800
Utility extensions	$5,000	$950
Gallons H_2O/day	400	200
Therms natural gas	150	60
Kilowatt hrs./year	10,000	6,000
Postal delivery	(300 times the cost)	

Energy, waste, pollution, accidents, even storm-sewer overloads are results of sprawl.

2. Shift to mixed use zoning

Repurpose capital investments for the health and safety of our kids

Sprawl Is Associated with More Health Problems



Rand 2004 study, N=8686, 38 cities

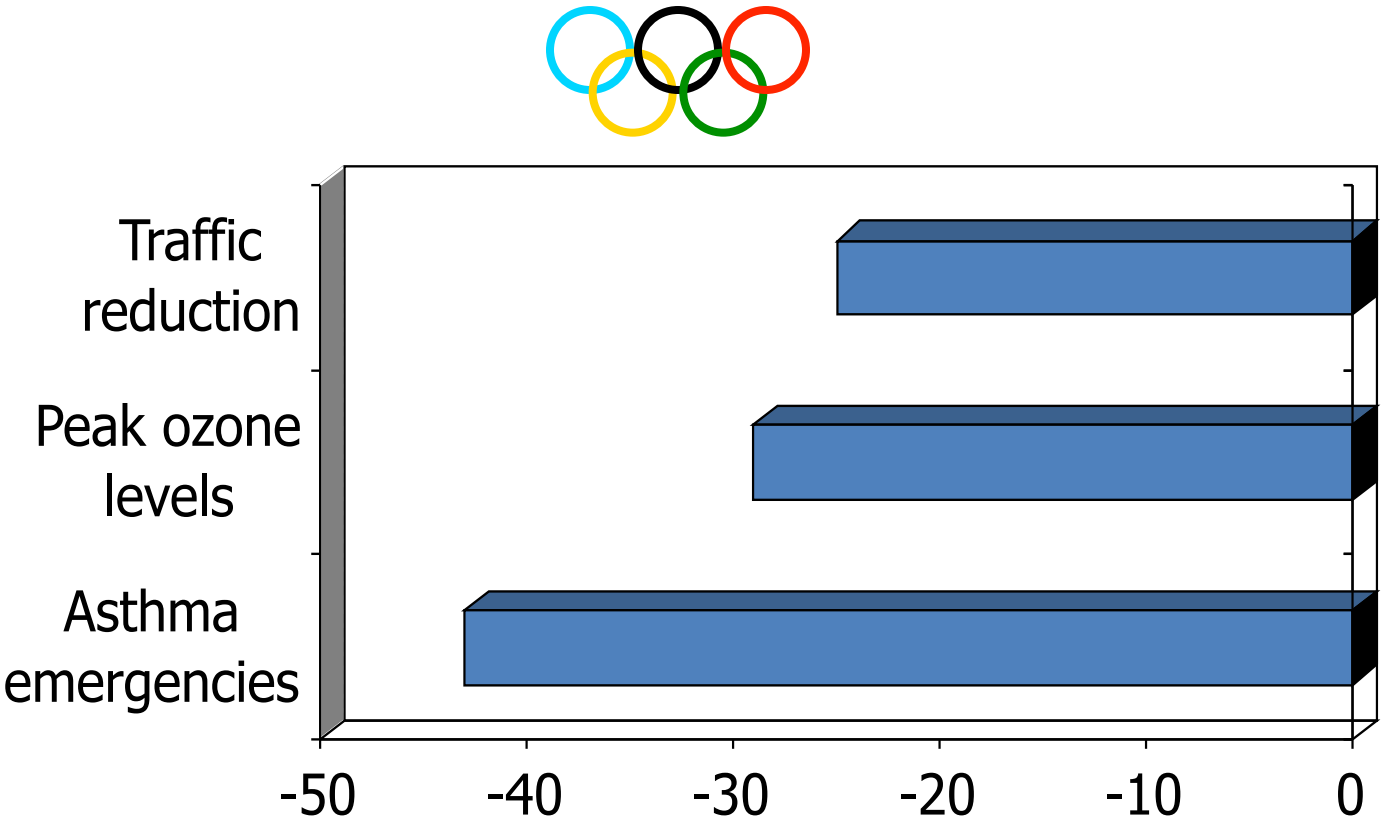
Sprawl Measures (Ewing et al, 2003)

Dimension	Sample Metrics
Streets factor	• Average block length • Block size in square miles • % small blocks
Land use mix factor	• % population within 1 mile of shopping, schools, business • Job/resident balance
Concentration of people and jobs (Centers factor)	• Variation of density across census tracts • Density gradient • % of population less than 3 and % more than 10 miles from business center
Population density factor	• People per square mile • % in low density areas • % in high density areas • Average lot size

RAND
January, 2004

Single Use Zoning that limits active lifestyles contributes to Health Problems

During the 1996 Olympics in Atlanta, city officials reduced vehicle traffic by 22.5% and asthmas related emergencies decreased 41.6%



Source: Friedman et al., 2001 (CDC/*JAMA*)

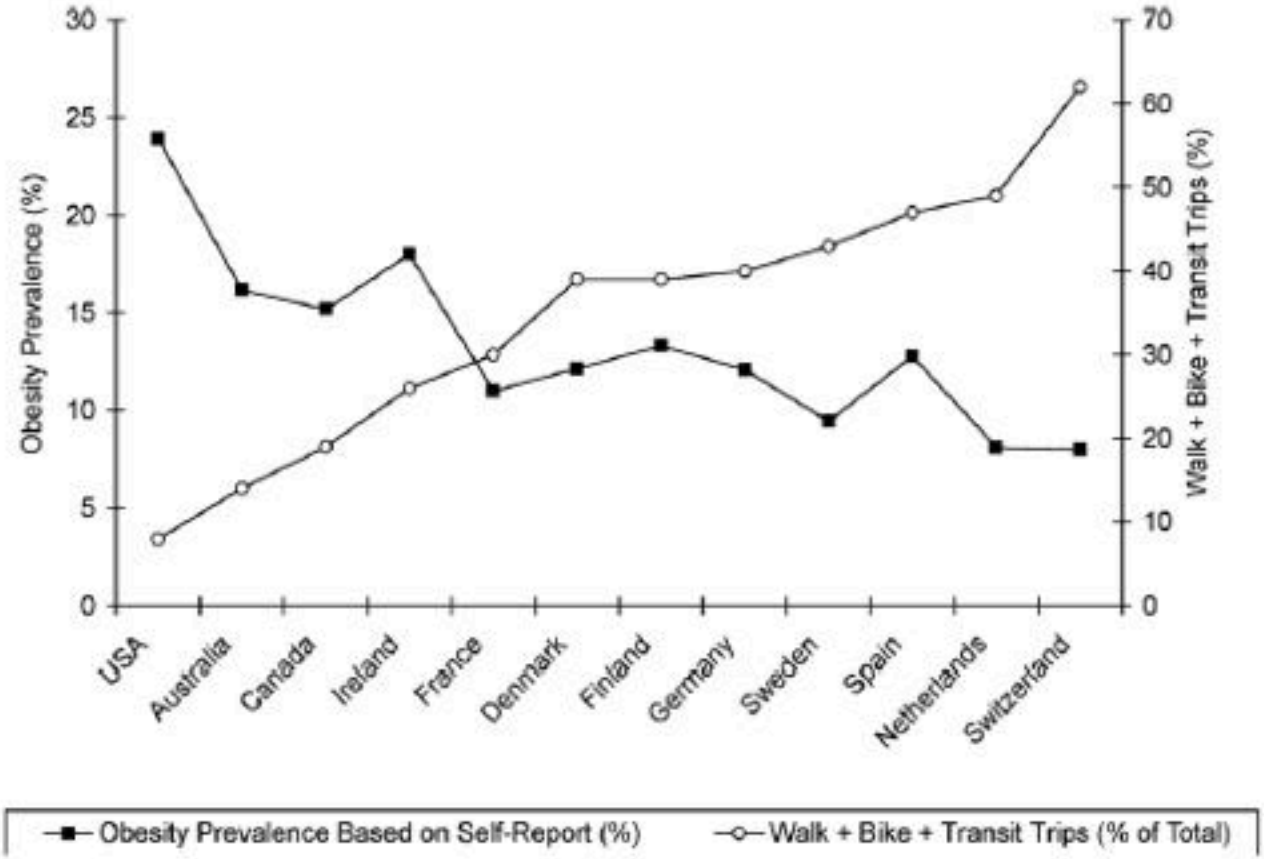


Figure 2 — Obesity (BMI ≥ 30 kg · m^{-2}) prevalence and rates of active transportation (defined as the combined percentage of trips taken by walking, bicycling, and public transit) in countries of Europe, North America, and Australia. BMI was computed from self-reported height and weight. Data were obtained from national surveys of travel behavior and health indicators conducted between 1994 and 2006 (see text for details).

Walking, Cycling, and Obesity Rates in Europe, North America, and Australia

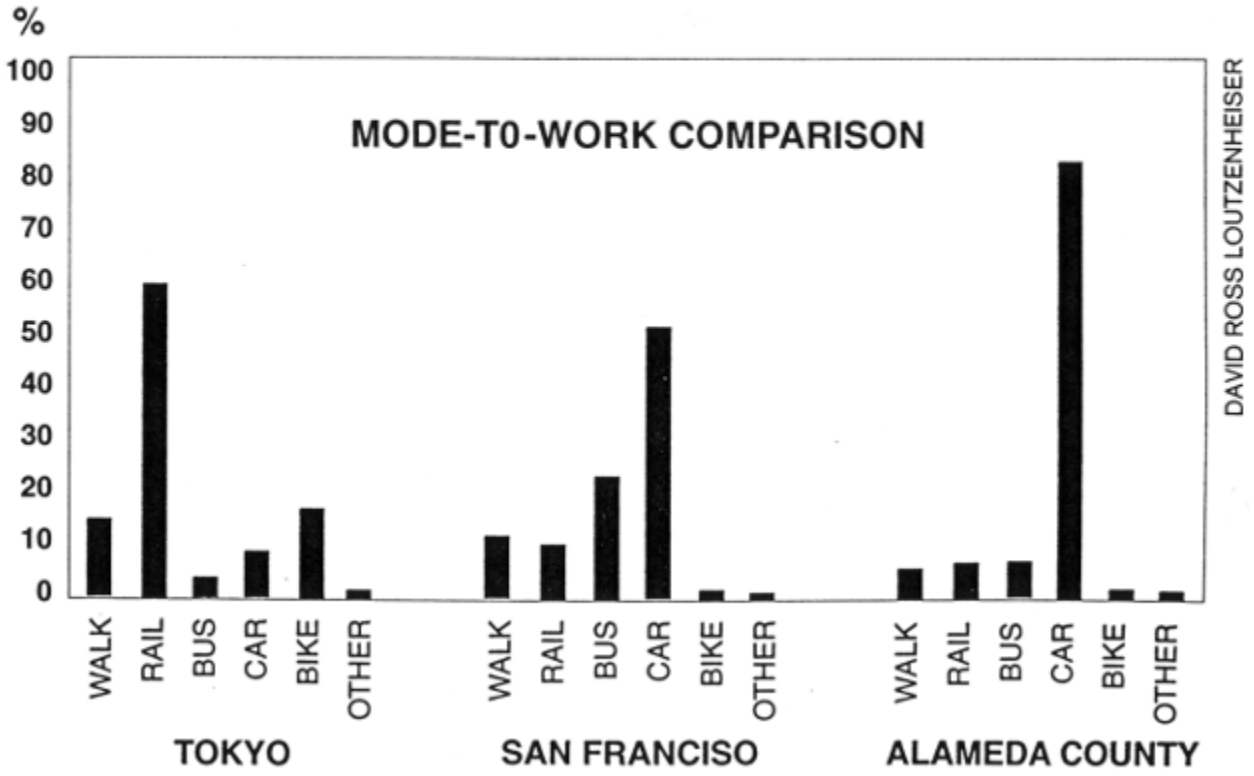
David R. Bassett Jr. et al.

Journal of Physical Activity and Health: Human Kinetics 2008

3. Invest in a transportation ‘portfolio’ for mobility

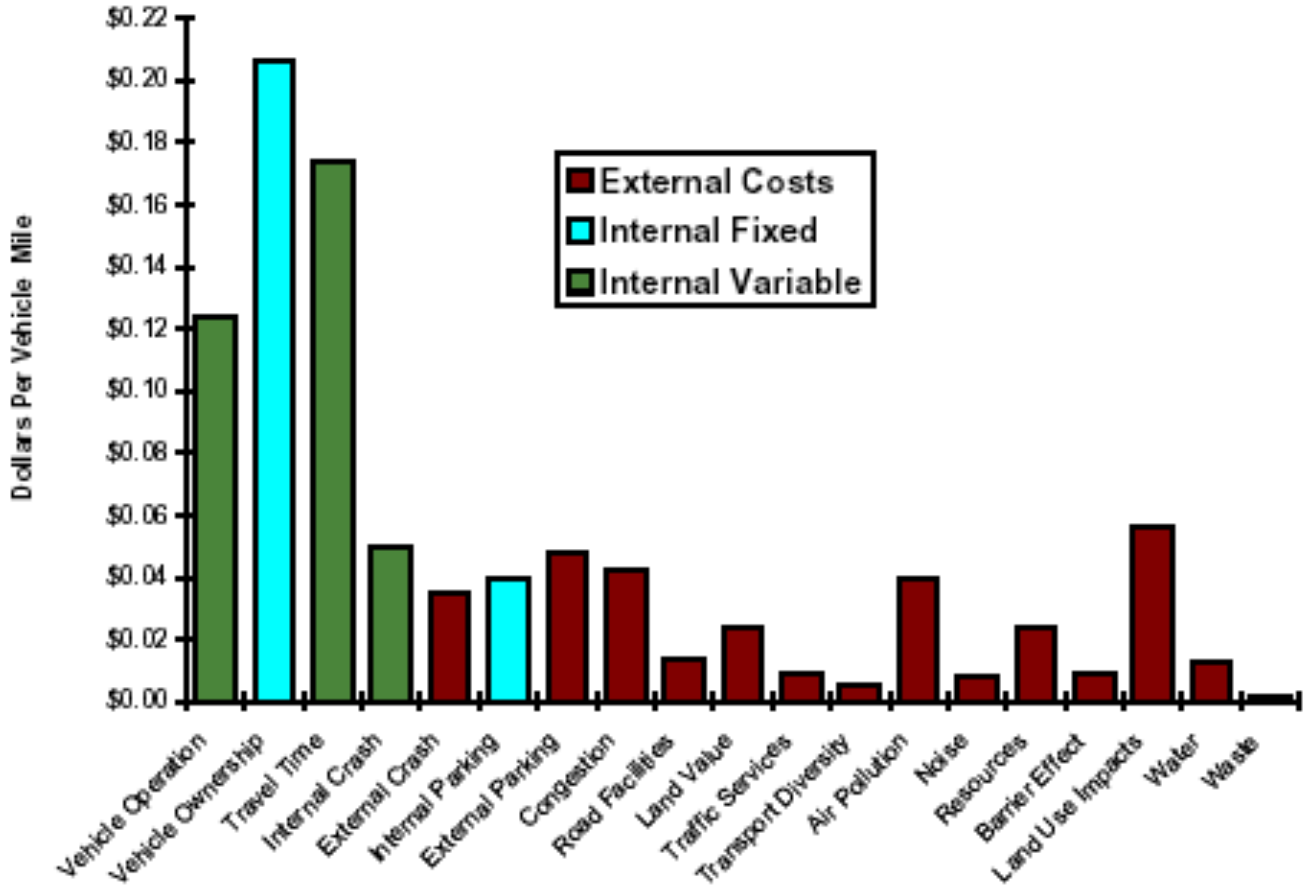
Repurpose traffic, parking and recreation capital

from the University of California at Berkeley and in urban planning from the University of Washington.



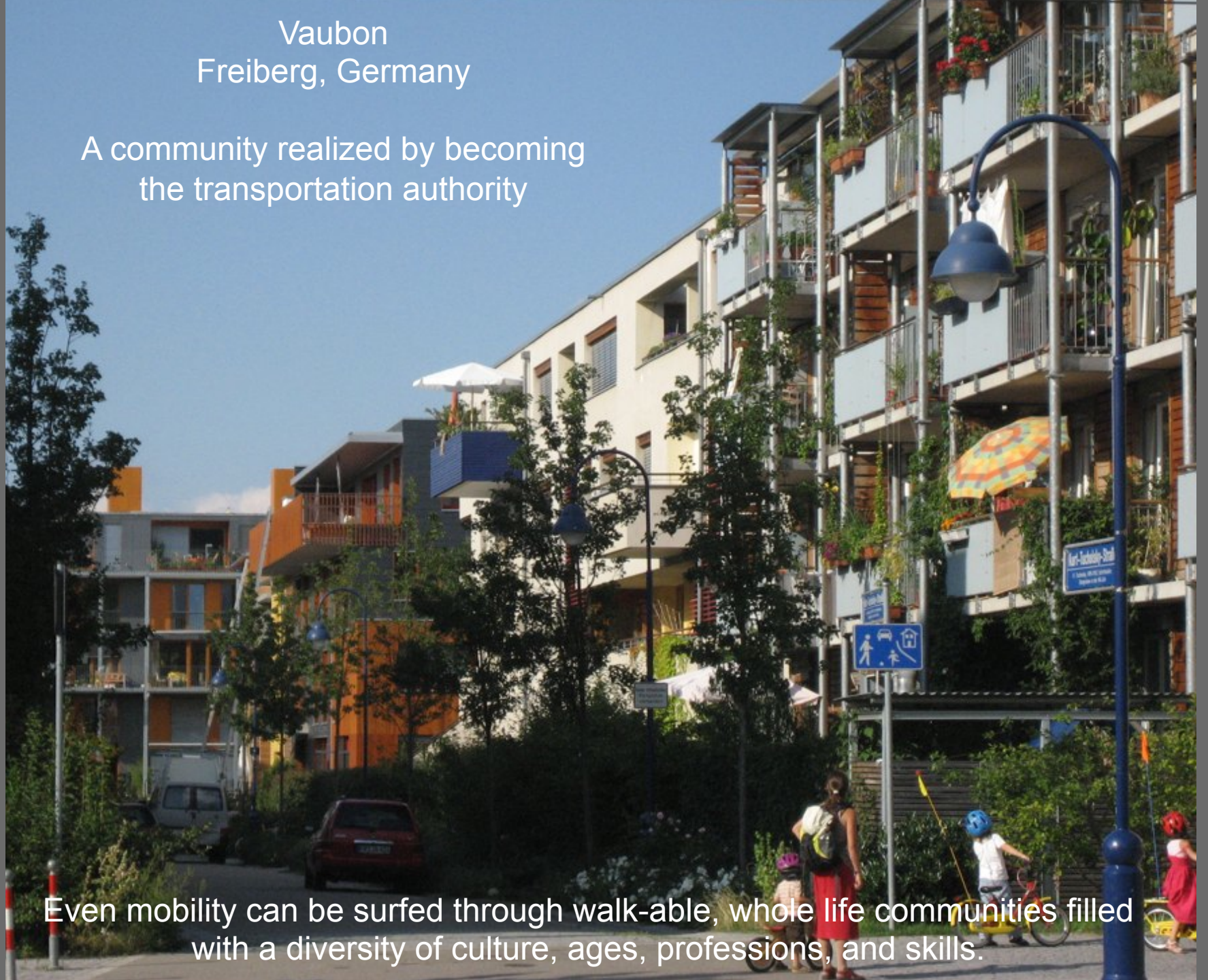
Automobile-only development is transportation poverty

Figure 6-1 Costs Per Vehicle Mile for Average Car



This figure shows Average Car costs per vehicle mile.

Every Mile of Road has individual and Societal Costs (VTPI)


Vaubon
Freiberg, Germany
A community realized by becoming
the transportation authority
Even mobility can be surfed through walk-able, whole life communities filled
with a diversity of culture, ages, professions, and skills.

linked to other communities and shared amenities
by bikeways and high speed rail
without losing family time and community time
in traffic, airports, and hotels.

Designed for Walking

Copenhagen's small size, canals, and affinity for bike-riding make for beautiful, relaxing commutes.

Read more: http://www.businessinsider.com/10-cities-with-the-best-infrastructures-2012-12?op=1#ixzz2YPU7tvr8

4. Unpave to save

5. Design the watershed

Repurpose potable water supply and storm-sewer capital


water treatment plant

all water infrastructures become visual & recreational amenities

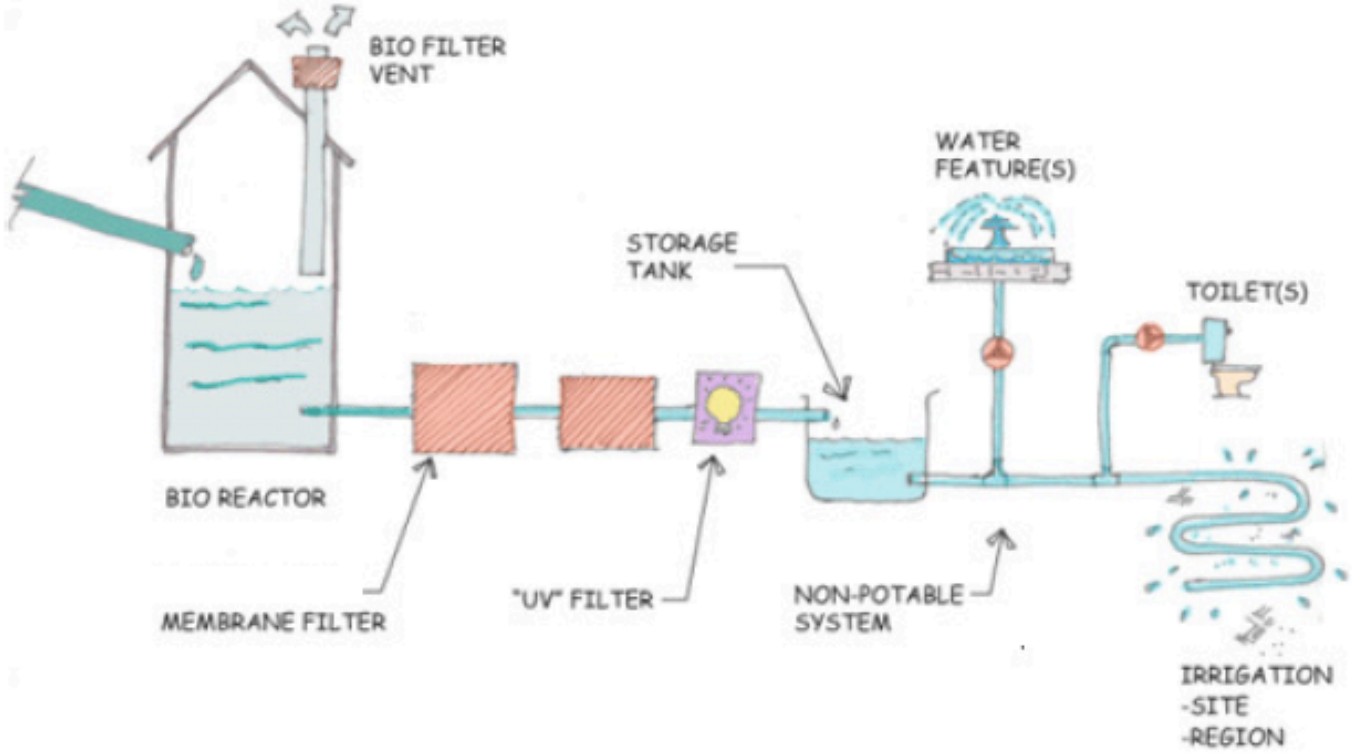

Denver water main

Dockside Green,
Victoria Canada

A community realized by
becoming the water and
sewer authority,
and the heating authority.

ZeeWeed systems recycle ALL gray and black water

Dockside Creek Wastewater Treatment and Reuse System Flow Diagram



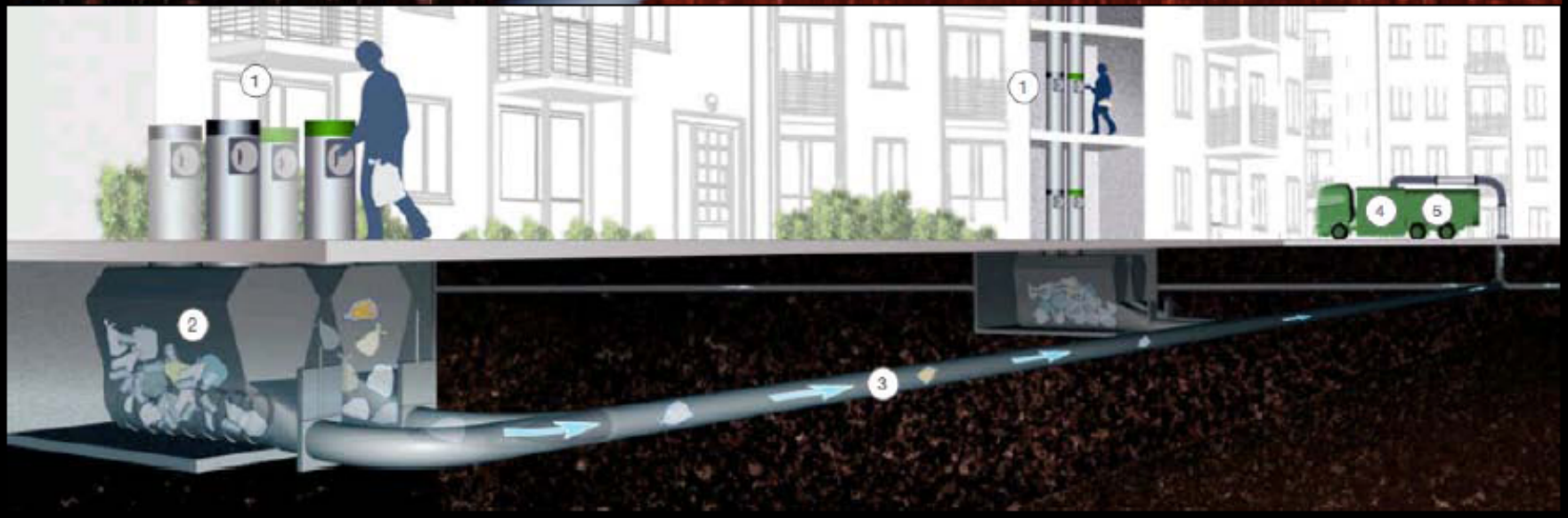
6. Design the waste shed

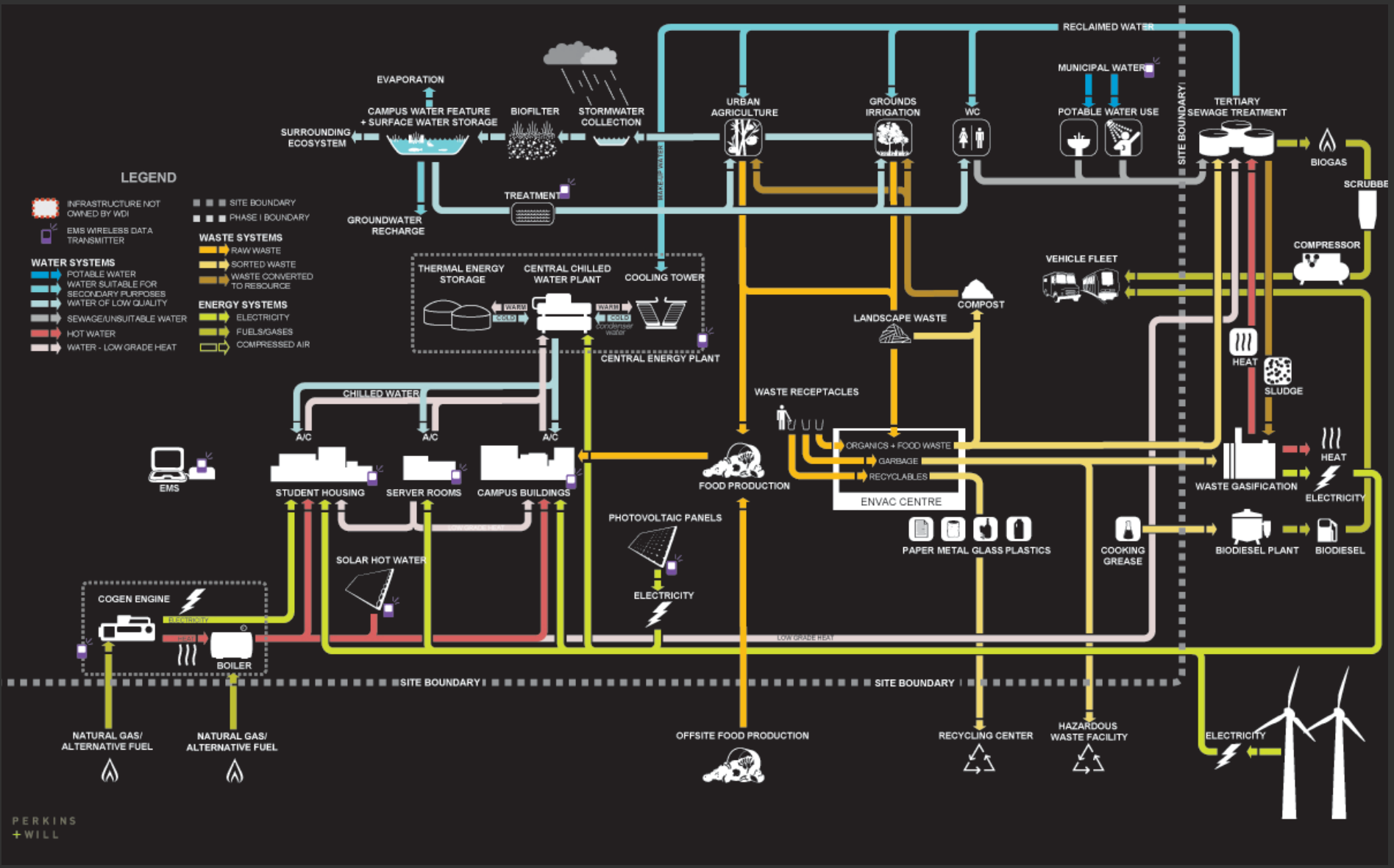
Repurpose waste management capital

Hammarby
Stockholm, Sweden

A community realized by becoming
the waste authority,
the power and heat authority,
and the water authority.

A New Urban Waste Strategy





Blair McCary & Peter Busby on Integrated Infrastructures at Hammarby

7. Design local food infrastructures

Grow the local economy

8. Merge data, power, voice

Repurpose connectivity and grid failure capital


25

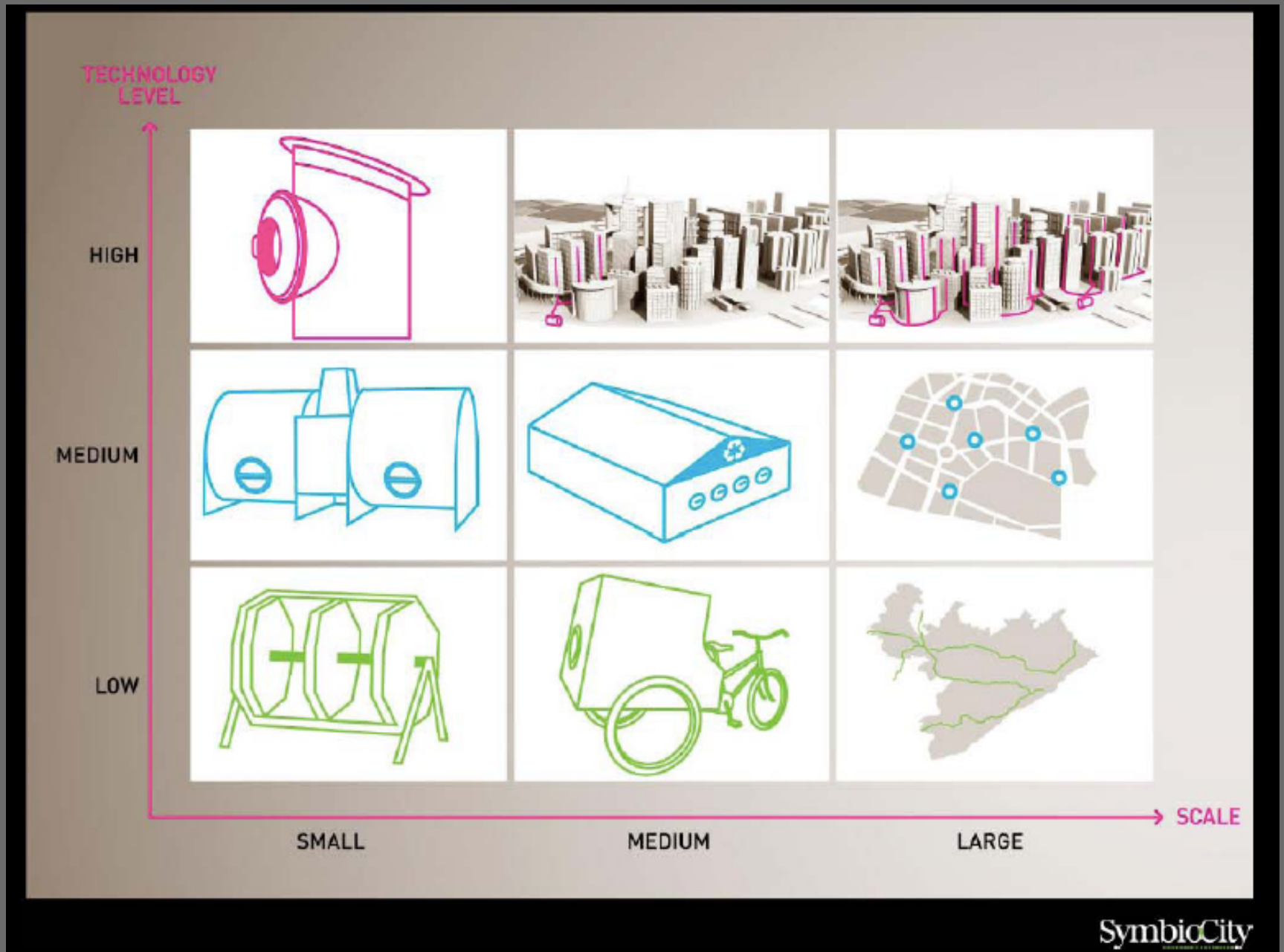
9. Combine heat and power

Repurpose power reliability and carbon sequestration capital

UBC's clean energy project will be the world's first biomass-fueled heat-and-power generation system operating on a community-sized scale

Read more: http://www.businessinsider.com/10-cities-with-the-best-infrastructures-2012-12?op=1#ixzz2YPSzfXBJ

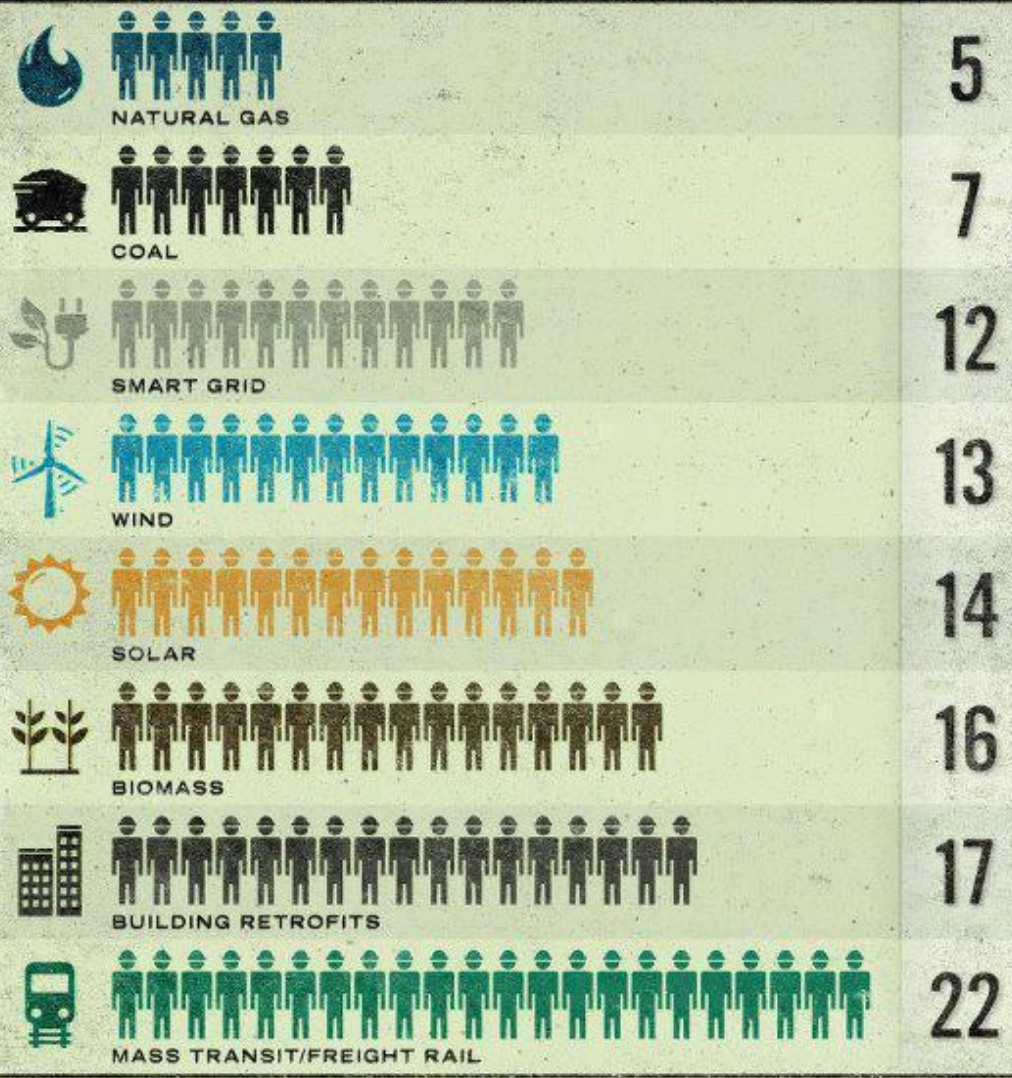
Designing integrated solutions at the right scale and the right technological complexity



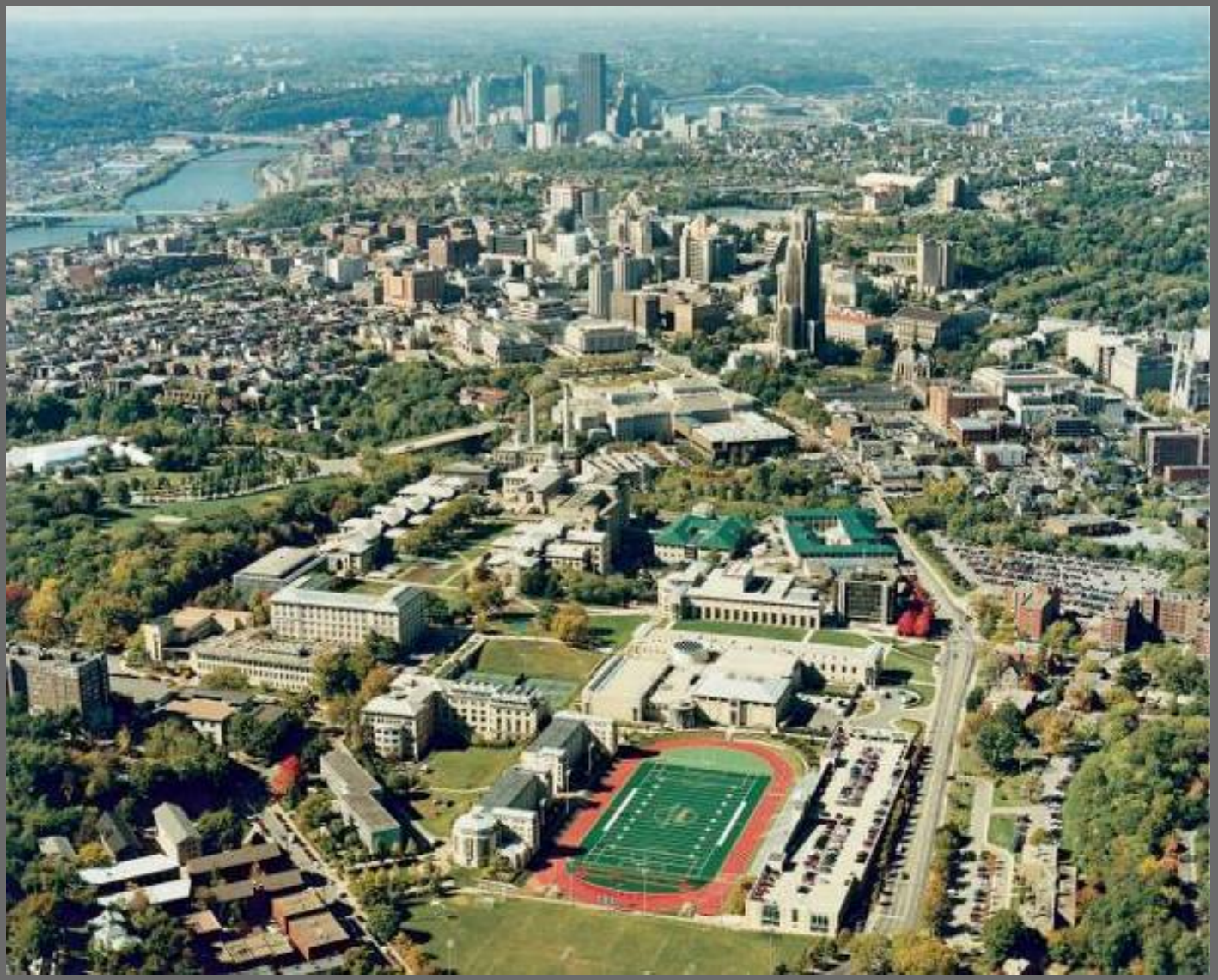
	Equity	Sustainabilty	Participation	Doing More with Less
Potable water	★	★	★	★
Storm water	★	★	★	★
Waste water	★	★	★	★
Solid waste	★	★	★	★
Electricity	★	★	★	★
Data/Cable	★	★	★	★
Heat/gas	★	★	★	★
Transportation	★	★	★	★
Food	★	★	★	★

THE TRUTH ABOUT JOB CREATION

INVEST $1,000,000 IN THE FOLLOWING INDUSTRIES, YOU GET THIS MANY JOBS:



Source: Political Economy Research Institute at the University of Massachusetts



Transportation comparisons across neighborhoods

Region	Area Median income (AMI)	Most location-efficient neighborhoods			Moderately location-efficient neighborhoods			Least location-efficient neighborhoods		
		Avg. annual transportation costs	Avg. annual housing costs	Avg. H+T[1] costs as % of AMI	Avg. annual transportation costs	Avg. annual housing costs	Avg. H+T[1] costs as % of AMI	Avg. annual transportation costs	Avg. annual housing costs	Avg. H+T[1] costs as % of AMI
New York	$63,553	$5,053	$16,811	34.40%	$11,767	$17,571	46.16%	$15,913	$25,902	65.80%
San Francisco	$74,876	$8,208	$18,953	36.27%	$14,224	$21,250	47.38%	$16,251	$31,904	64.31%
Boston	$69,854	$8,234	$17,771	37.23%	$14,316	$19,038	47.75%	$16,834	$22,402	56.17%
Chicago	$60,289	$8,664	$16,507	41.75%	$13,905	$15,780	49.24%	$16,130	$19,446	59.01%
Denver	$59,932	$10,416	$11,454	36.49%	$13,428	$15,125	47.64%	$15,505	$23,142	64.48%
Los Angeles	$58,987	$10,534	$15,012	43.31%	$13,651	$18,848	55.10%	$15,522	$28,958	75.41%
DC	$84,424	$10,570	$17,688	33.47%	$14,843	$22,534	44.27%	$17,420	$24,919	50.15%
Twin Cities	$65,109	$10,848	$12,551	35.94%	$14,481	$16,639	47.80%	$17,329	$18,412	54.89%
El Paso	$35,249	$10,984	$6,005	48.20%	$12,588	$8,480	59.77%	$14,605	$9,539	68.50%
St. Louis	$52,952	$11,036	$10,279	40.25%	$13,845	$13,771	52.15%	$16,730	$11,800	53.88%
Cincinnati	$53,329	$11,706	$9,333	39.45%	$14,264	$13,423	51.92%	$16,989	$13,026	56.28%
Dallas-Ft. Worth	$55,459	$11,852	$11,101	41.39%	$14,315	$15,250	53.31%	$16,502	$15,133	57.04%
Charlottesville	$54,701	$11,957	$10,656	41.34%	$14,497	$17,031	57.64%	$17,309	$10,340	50.55%
Grand Rapids	$49,446	$12,167	$10,085	45.00%	$14,181	$13,106	55.19%	$17,651	$11,657	59.27%
Phoenix	$54,713	$12,236	$10,024	40.69%	$14,139	$15,952	55.00%	$16,274	$17,803	62.28%
Asheville	$43,216	$12,523	$9,518	51.00%	$14,242	$9,270	54.41%	$16,016	$7,551	54.53%
Salt Lake City	$57,682	$12,600	$9,496	38.31%	$14,671	$13,795	49.35%	$16,579	$19,148	61.94%
Atlanta	$58,390	$12,626	$14,811	46.99%	$15,140	$16,967	54.99%	$17,604	$13,896	53.95%
Fayetteville, AR	$45,757	$13,056	$8,053	46.13%	$14,667	$12,563	59.51%	$17,255	$8,308	55.87%
Olympia, WA	$59,453	$13,460	$11,284	41.62%	$15,228	$16,083	52.67%	$17,807	$14,470	54.29%

[1]*Housing and transportation costs combined*

$10,000 Extra? **The Transportation Tab for Sprawling 'Hoods in 20 Metro**s in DCStreets

Center for neighborhood technology 2012