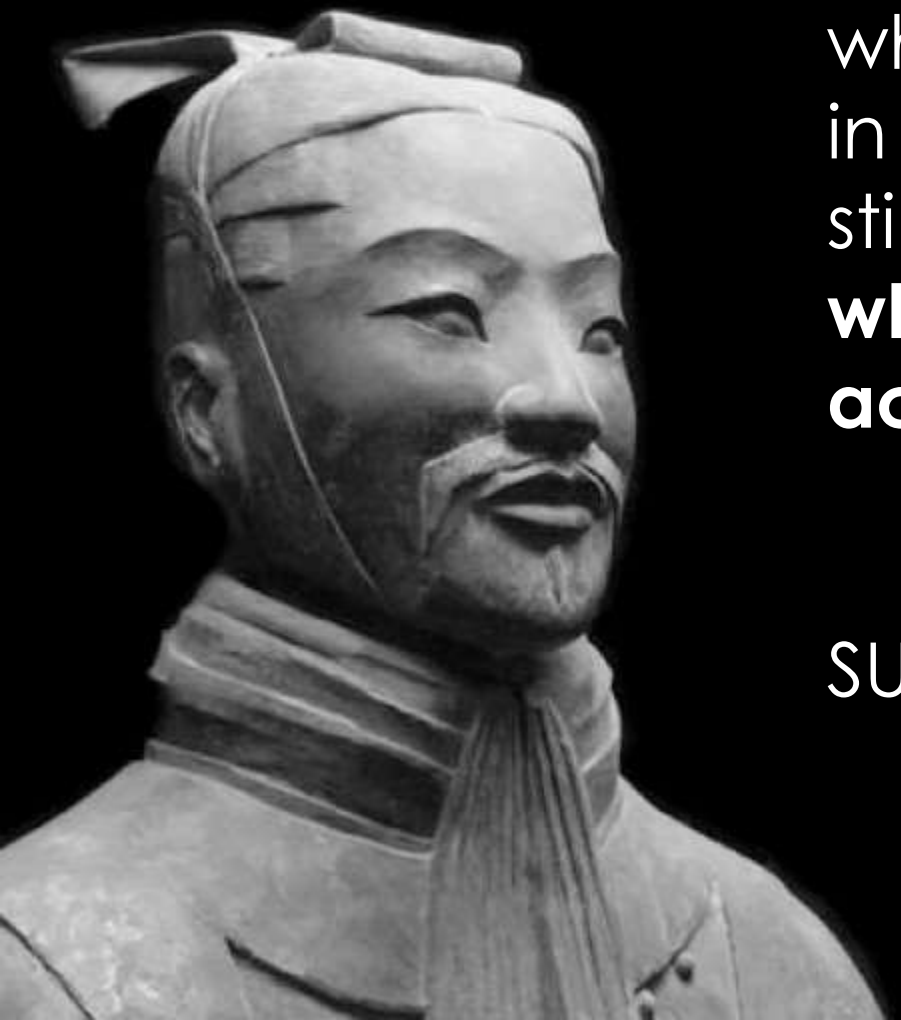
human habitats
THE SCIENCE AND DESIGN OF CITIES

cc huang



Plan for what is difficult when it is easy, do what is great while it is small. The most difficult things in the world must be done while they are still easy, the greatest things in the world must be done while they are still small. For this reason, **sages never do what is great and that is why they can achieve that greatness.**

SUN TZU

I. WHAT IS THE PURPOSE OF A CITY?
II. THE SCIENCE
III. THE DESIGN
IV. A VISION OF HUMAN HABITATS

I. WHAT IS THE PURPOSE OF A CITY?

WHAT DO YOU LOVE ABOUT YOUR FAVORITE CITIES?

A CITY IS A PLACE WHERE

_____ .


LENSCRAFTERS


NEW YORK STYLE ALL BEEF
HOT DOG
hot dog!

SCIENCE = SYSTEM ANALYSIS

DESIGN = SYSTEM ARCHITECTURE

II. THE SCIENCE

We definitely know more about good habitats for mountain gorillas, Siberian tigers, or panda bears than we do know about a good urban habitat for Homo sapiens.

- Jan Gehl

JAN GEHL

METHODOLOGY

ANTHROPOLOGY

+

DATA

+

THE HUMAN EXPERIENCE

=

UNDERSTANDING THE HUMAN ENVIRONMENT

Quality Criteria for Space Between Buildings

PROTECTION	*Protection against traffic and accidents - feeling safe* - Protections for pedestrians - Eliminating fear of traffic	*Protection against crime and violence - feeling secure* - Lively public realm - Eyes on the street - Good lighting	*Protection against unpleasant sensory experiences* - Wind, rain, snow - Cold/heat - Pollution, dust, noise
COMFORT	*Opportunities to walk* - Room for walking - No obstacles - Good surfaces - Accessibility for everyone - Interesting facades	*Opportunities to stand/stay* - Edge effect/attractive zones for standing/staying - Supports for standing	*Opportunities to sit* - Zones for sitting - Utilizing advantages: views, sun, people - Benches for resting
	Opportunities to see - Reasonable viewing distances - Unhindered sightliness - Interesting views - Lighting (when dark)	*Opportunities to talk and listen* - Low noise levels - Street furniture that provides "talkescapes"	*Opportunities for play and exercise* - Invitations for creativity, physical activity, exercise and play - By day and night, in summer and winter
DELIGHT	*Scale* - Buildings and spaces designed for the human scale	*Opportunites to enjoy the positive aspects of the climate* - Sun/shade - Heat/coolness - Breeze	*Positive sensory experiences* - Good design and detailing - Good materials - Fine views - Trees, plants, water

These improvements are key to a great public space (Source: Jan Gehl).

JANE JACOBS

WARRIOR-MAIDEN FOR URBAN RENEWAL

CONDITIONS FOR URBAN VIBRANCY

- DIVERSE FUNCTIONS
- SMALL CITY BLOCKS
- DIVERSE BUILDINGS (MIXED-INCOME)
- SUFFICIENT DENSITY

RESULTS FROM 300 CITIES IN CHINA

	Model 3		Model 2 and CITY_LEVEL = 5		Model 2 and CITY_LEVEL = 4		Model 2 and CITY_LEVEL = 3		Model 2 and CITY_LEVEL = 2	
Variable	**Beta**	**Significance**	**Beta**	**Significance**						
(Constant)		0.000		0.004		0.000		0.015		0.844
ROAD	0.008	0.470	0.000	0.993	-0.016	0.477	0.028	0.396	-0.008	0.644
JUNCTION	**0.256**	0.000	**0.357**	0.000	**0.301**	0.000	**0.15**	0.000	**0.223**	0.000
POI_DENSITY	**0.052**	0.000	**0.065**	0.000	**0.037**	0.025	**0.141**	0.000	**0.08**	0.000
POP_DENSITY	**0.109**	0.000	**0.089**	0.000	**0.123**	0.000	**0.087**	0.000	**0.076**	0.000
MIXTURE	**0.124**	0.000	**0.17**	0.000	**0.123**	0.000	**0.187**	0.000	**0.102**	0.000
GDP	**-0.031**	0.000	**0.125**	0.000	**-0.163**	0.000	**0.154**	0.000	**0.045**	0.000
TERTIARY	**-0.02**	0.001	**-0.149**	0.000	-0.018	0.107	0.006	0.704	**0.04**	0.000
INCOME	**0.152**	0.000			**0.088**	0.000	**-0.083**	0.000	**0.035**	0.000
CITY_LEVEL	**0.103**	0.000	**0.108**	0.000						
AMENITIES	**0.291**	0.000	**0.148**	0.000	**0.316**	0.000	**0.331**	0.000	**0.322**	0.000
ACCESSIBILITY			**-0.187**	0.000	**-0.067**	0.000	-0.024	0.105	**-0.064**	0.000
A_TRANSPORTATION	**-0.041**	0.000								
A_AMENETIES	**-0.041**	0.000								
Dependent variable	ln_DP_Comment		ln_DP_Comment		ln_DP_Comment		ln_DP_Comment		ln_DP_Comment	
R2	*0.528*		0.624		0.569		0.583		0.416	
N	24512		4039		5467		2493		12513	

WHAT DOES THE DATA SHOW?

CHINA DATA INSIGHTS

This table gives a high-level overview of studies done on China that look at The 8 Principles. Column 1 identifies the location of the study, column 2 references the number of the study later listed in the bibliography, column 3 isolates the key principles the study looks at, and the colored columns identify the benefits that are quantified in each study.

Location	#	Principles	Environmental			Economic					Social		
			Decreased car travel	Improved air quality	Lower GHG emissions	Energy savings	Improved productivity	Reduced congestion	Higher property values	More government revenue	Improved health	Better human mobility	Increased equality of access
Beijing	1	Mix, Transit	■		■								
	2	Transit							■				
	3	Shift			■						■		
	4	Shift						■					
	5	Walk								■			
	6	Shift, Transit					■						
	7	Transit							■				
	8	Connect										■	
	9	Mix											■
	10	Mix	■										
Guangzhou	11	Bike						■					
	12	Mix							■				
	13	Walk							■				
Shanghai	14	Shift	■										
	15	Transit										■	
	16	Walk, Bike									■		
National/ Multiple Cities	17	All	■		■	■							
	18	Connect				■							
	19	Shift								■			
	20	Walk									■		
Chongqing	21	Walk, Connect						■					
Kunming	22	All	■	■	■								
Shenzhen	23	Densify							■				
Nanjing	24	Bike										■	
	25	Mix, Bike	■										
Jinan	26	Walk	■										
	27	Connect	■			■							
Hankou	28	Compact, Transit			■								
Xi'an	29	Transit	■										

INTERNATIONAL DATA INSIGHTS

This table gives a high-level overview of studies done internationally that look at The 8 Principles. Column 1 identifies the location of the study, column 2 references the number of the study later listed in the bibliography, column 3 isolates the key principles the study looks at, and the colored columns identify the benefits that are quantified in each study.

Location	#	Principles	Environmental			Economic					Social		
			Decreased car travel	Improved air quality	Lower GHG emissions	Energy and other savings	Improved productivity	Reduced congestion	Higher property values	More government revenue	Improved health	Better human mobility	Increased equality of access
International	1	Shift, Transit			■	■							
	2	All			■								
	3	Compact			■								
	4	All					■						
	5	All			■		■						
United States	6	All					■			■	■		
	7	Densify			■								
	8	Walk							■				
	9	Walk							■				
	10	Shift			■	■	■	■					
	11	Shift					■						
	12	Mix									■		
	13	Transit, Compact				■							
Japan	14	Densify										■	
Korea	15	Transit										■	
Brazil	16	Shift					■						
Norway	17	Bike		■		■							
Copenhagen	18	Shift, Bike			■	■		■		■	■		
Mexico	19	Transit							■				
New Zealand	20	Bike				■							
Canada	21	Densify, Mix				■							

PHYSICAL

clean air
clean water
food
absence of harmful levels of radiation
minimal contact with pathogens
protection from extremes of climate
noise levels within natural range
physical activity
sleep

PSYCHO-SOCIAL

an emotional support network
experience of conviviality
opportunities for co-operative behavior
sensory stimulation
interesting biodiverse environment
aesthetically pleasing environment
opportunities for creative behavior
opportunities for learning
opportunities for recreation
opportunities for spontaneity
variety in daily experience
a sense of belonging, purpose, and love
absence of alienation and deprivation

THE BIOLOGY OF CIVILIZATION: UNDERSTANDING HUMAN CULTURE AS A FORCE IN NATURE (BOYDEN 2004)

SYNDEMICS

syndemic: violence, substance abuse, and AIDS
causes: unemployment, poverty, substandard housing, homelessness, poor nutrition, disrupted family and social relationships and little or no access to health care.

syndemic: obesity, diabetes, and depression
causes: lack of exercise, poor nutrition, poor education and culture

Med Anthropol Q. 2003 Dec;17(4):423-41.

Syndemics and public health: reconceptualizing disease in bio-social context.

Singer M[1], Clair S.

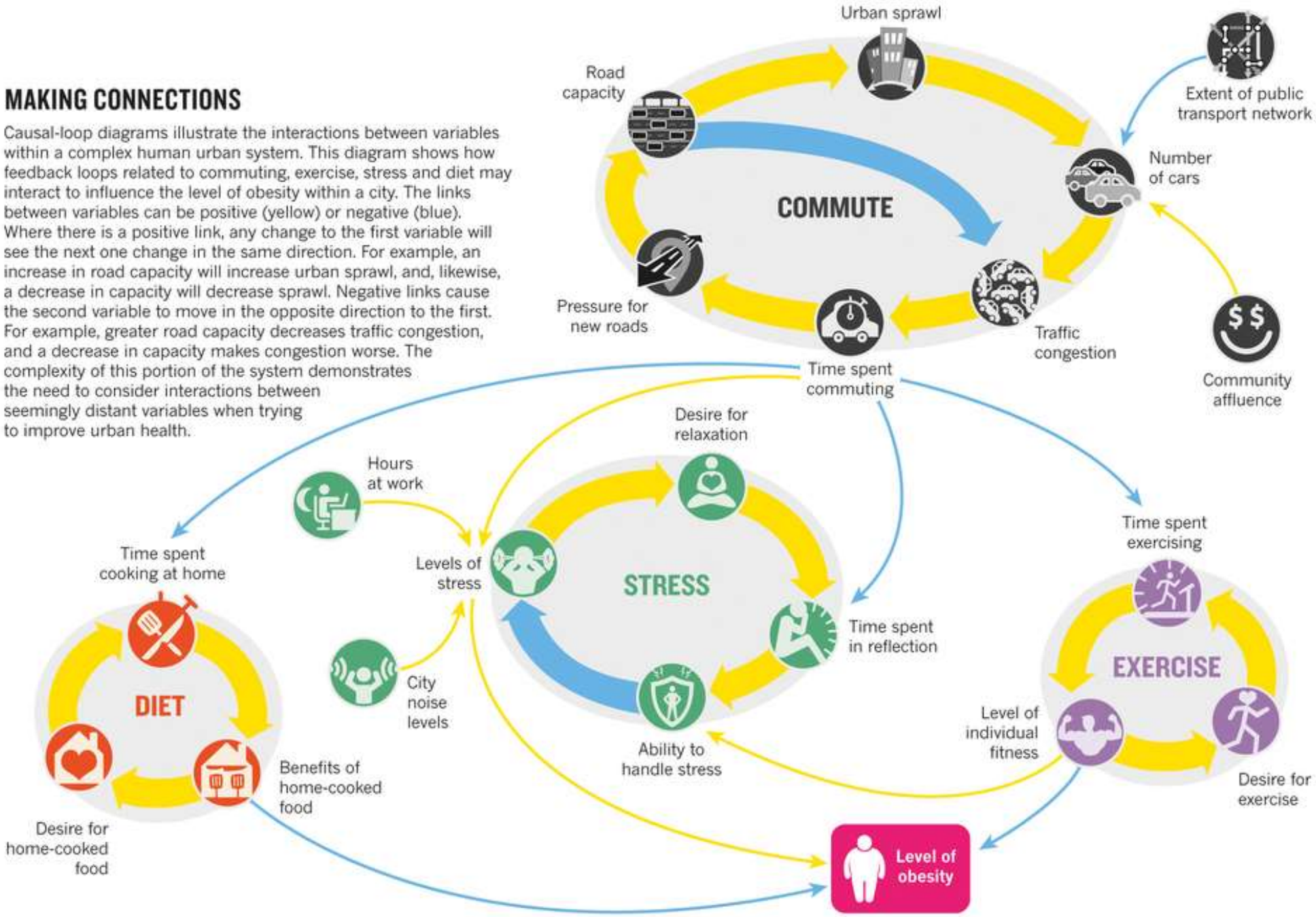
Author information

Abstract

The world of public health has undergone dramatic changes since the emergence of AIDS in the early 1980s. The appearance and global spread in recent years of wave after wave of new and renewed infectious diseases and their entwinement with each other and with the social conditions and biopsychological consequences of disparity, discrimination, and structural violence has produced a new significant threat to public health internationally. The term syndemic has been introduced recently by medical anthropologists to label the synergistic interaction of two or more coexistent diseases and resultant excess burden of disease. This article provides the fullest examination of this new concept to date, including a review of relevant new literature and recent research finds concerning coinfection and synergistic interaction of diseases and social conditions at the biological and population levels.

MAKING CONNECTIONS

Causal-loop diagrams illustrate the interactions between variables within a complex human urban system. This diagram shows how feedback loops related to commuting, exercise, stress and diet may interact to influence the level of obesity within a city. The links between variables can be positive (yellow) or negative (blue). Where there is a positive link, any change to the first variable will see the next one change in the same direction. For example, an increase in road capacity will increase urban sprawl, and, likewise, a decrease in capacity will decrease sprawl. Negative links cause the second variable to move in the opposite direction to the first. For example, greater road capacity decreases traffic congestion, and a decrease in capacity makes congestion worse. The complexity of this portion of the system demonstrates the need to consider interactions between seemingly distant variables when trying to improve urban health.



http://www.nature.com/nature/journal/v531/n7594_supp/full/531S64a.html

UNIVERSAL PATTERNS IN HUMAN MOBILITY

35 million movements 900,000 users 4.9 million places (Foursquare)

distribution of places determines human mobility – not distance

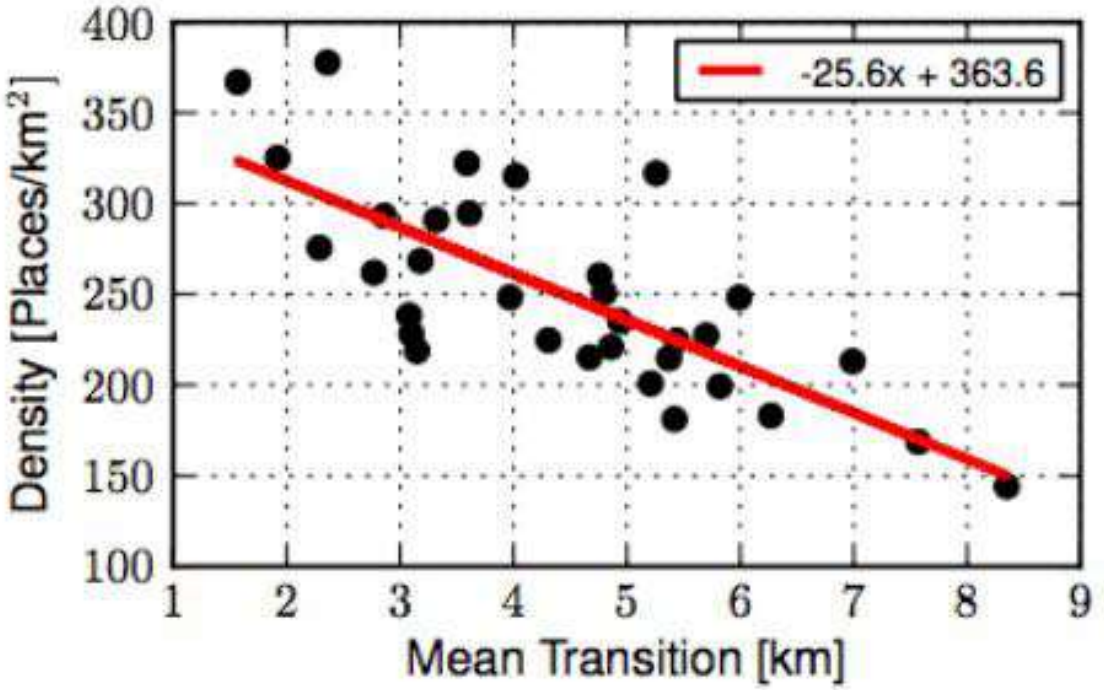


Fig. 4. Scatter plot of the density of a city, defined as the number of places per square kilometer, versus its mean human transition in kilometers. Each datapoint corresponds to a city, while the red line is a fit that highlights the relationship of the two variables ($R^2 = 0.59$). A longer mean transition corresponds to the expectation of a sparser urban environment, indicating that the number of available places per area unit could have an impact on human urban travel.

DESTINATIONS

III. DESIGN

INVISIBLE DESIGN FEATURES	1. Urban Growth Boundary	2. Transit Oriented Development	3. Mixed-Use	4. Small Blocks	5. Public Green Space
ACCESS AND MOBILITY	6. Non-Motorized Transit	7. Public Transit	8. Car Control		
ENERGY AND RESOURCES	9. Green Buildings	10. Renewable and District Energy	11. Waste Management	12. Water Efficiency	

PRINCIPLE + METRIC

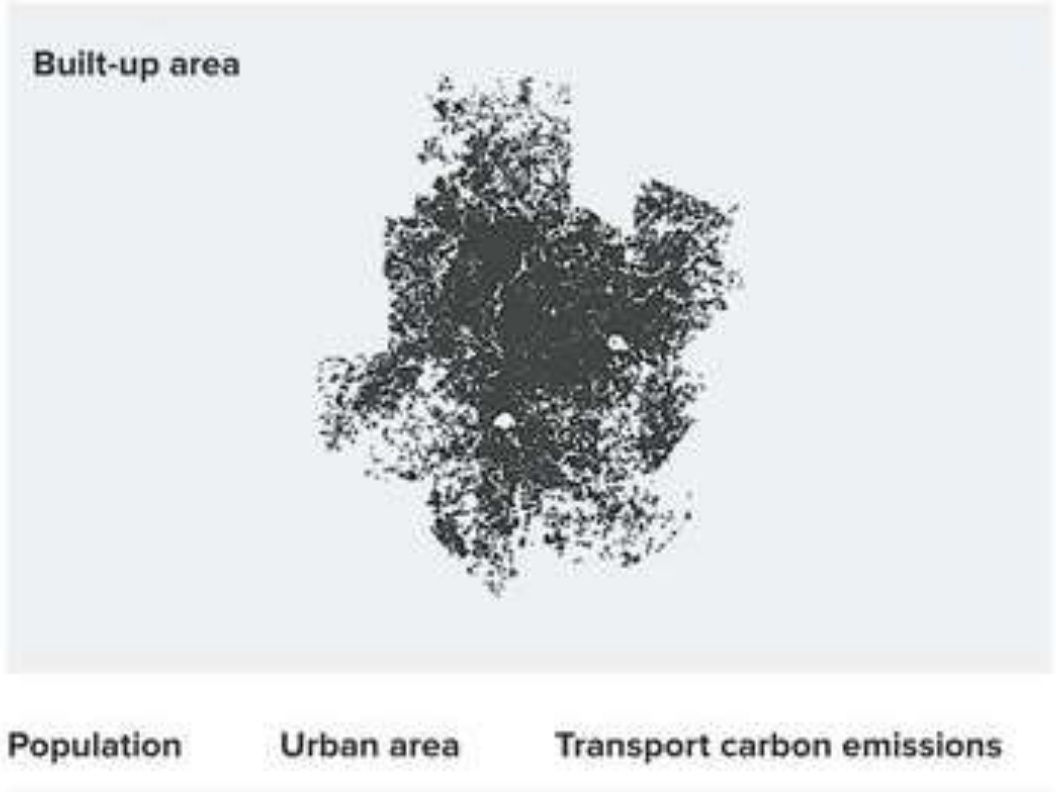
BENEFICIAL, MEASURABLE, PRACTICAL

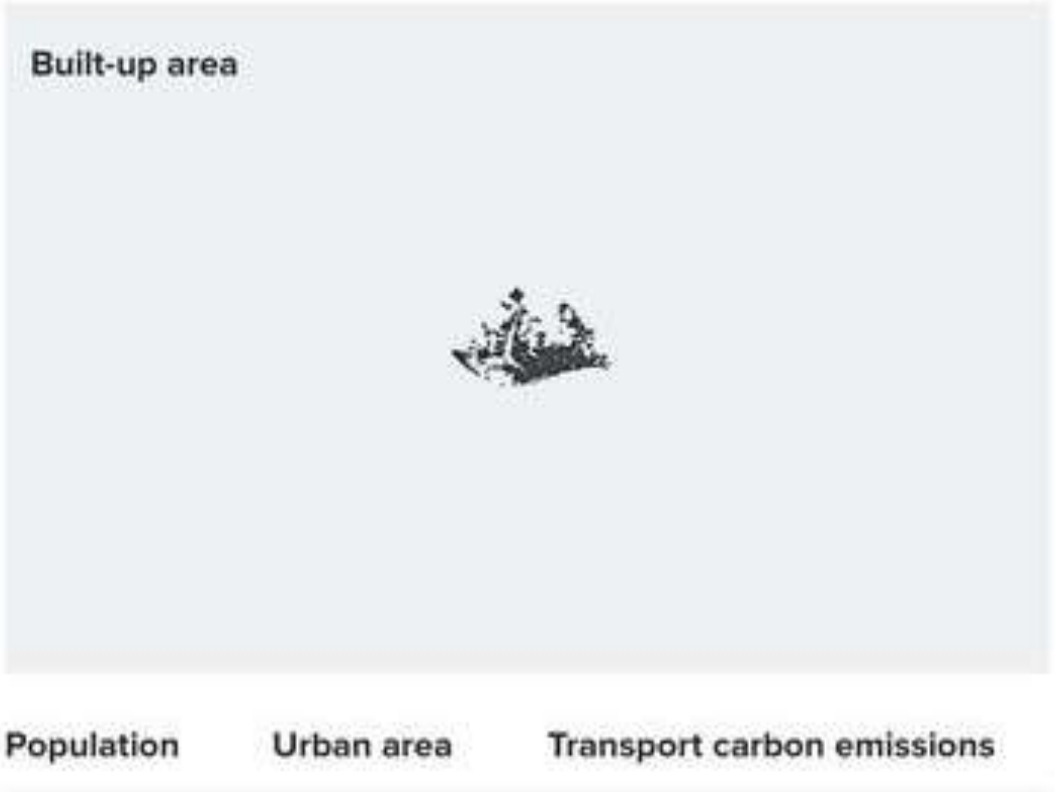
MINIMUM REQUIREMENTS

DADACITY

1. GREEN SPACES
2. WALKABLE
3. CLEAN AIR
4. SAFETY
5. ETC.

THE DIFFERENCE OF GOOD URBAN DESIGN

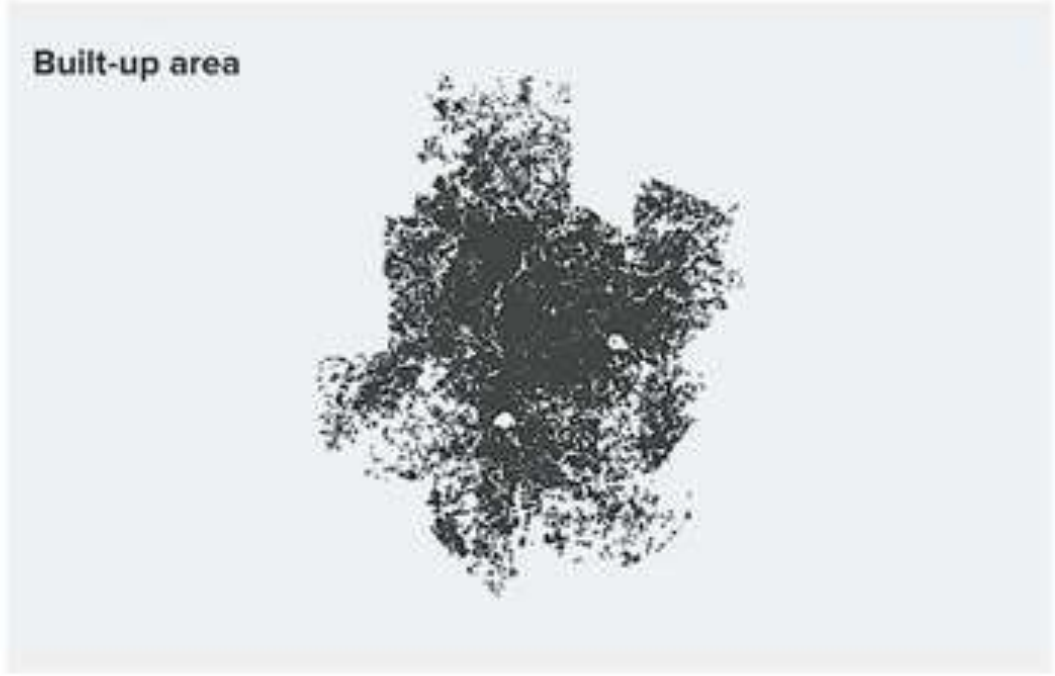




THE DIFFERENCE OF GOOD URBAN DESIGN

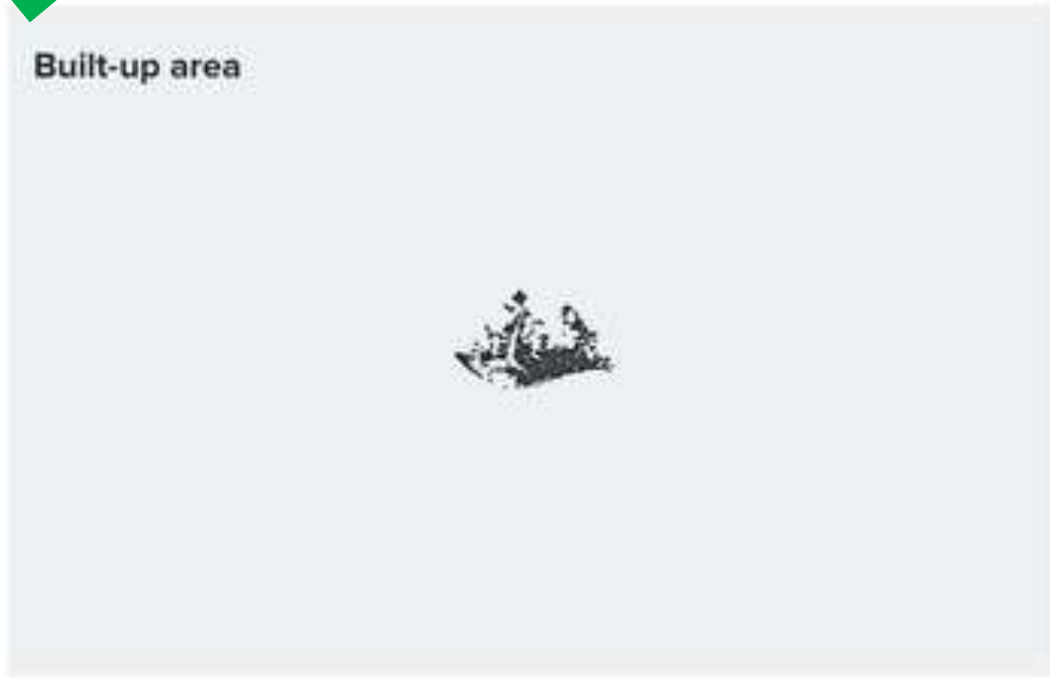
COMPARED TO ATLANTA, BARCELONA USES **4% OF THE LAND** AREA AND EMITS **90% LESS CARBON** FROM TRANSPORT

ATLANTA



Population	Urban area	Transport carbon emissions
2.5 million	4,280 km²	7.5 tonnes CO_2/person (public + private transport)

BARCELONA



Population	Urban area	Transport carbon emissions
2.8 million	162 km²	0.7 tonnes CO_2/person (public + private transport)

1. URBAN GROWTH BOUNDARY
2. TOD
3. MIXED-USE
4. SMALL BLOCKS
5. PUBLIC GREEN SPACE
6. WALKING AND BIKING
7. PUBLIC TRANSIT
8. CAR CONTROL
9. GREEN BUILDINGS
10. RENEWABLE AND DISTRICT ENERGY
11. WASTE
12. WATER

✗ SINGLE-USE SUPERBLOCKS BEIJING 2015

✓ MIXED-USE DISTRICT IN PORTLAND 2015

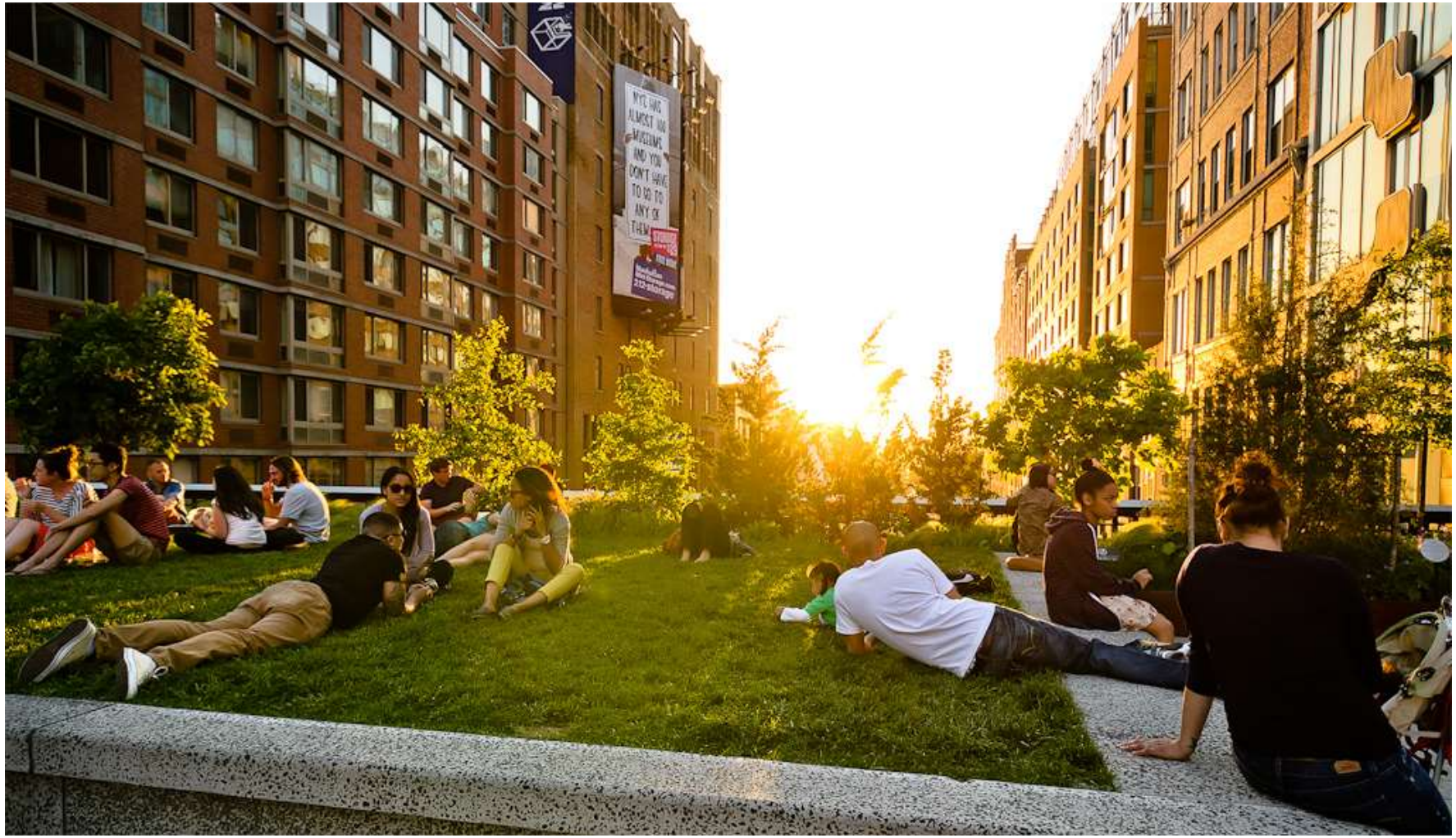
1. URBAN GROWTH BOUNDARY
2. TOD
3. MIXED-USE
4. SMALL BLOCKS
5. PUBLIC GREEN SPACE
6. WALKING AND BIKING
7. PUBLIC TRANSIT
8. CAR CONTROL
9. GREEN BUILDINGS
10. RENEWABLE AND DISTRICT ENERGY
11. WASTE
12. WATER

✗ SINGLE-USE SUPERBLOCKS ST. LOUIS 1950's

✓ MIXED-USE DISTRICT IN GUANGZHOU WITH SMALL BLOCKS 2015

1. URBAN GROWTH BOUNDARY
2. TOD
3. MIXED-USE
4. SMALL BLOCKS
5. PUBLIC GREEN SPACE
6. WALKING AND BIKING
7. PUBLIC TRANSIT
8. CAR CONTROL
9. GREEN BUILDINGS
10. RENEWABLE AND DISTRICT ENERGY
11. WASTE
12. WATER

HIGH LINE PARK IN NEW YORK CITY



1. URBAN GROWTH BOUNDARY
2. TOD
3. MIXED-USE
4. SMALL BLOCKS
5. PUBLIC GREEN SPACE
6. WALKING AND BIKING
7. PUBLIC TRANSIT
8. CAR CONTROL
9. GREEN BUILDINGS
10. RENEWABLE AND DISTRICT ENERGY
11. WASTE
12. WATER

SPACE EFFICIENCY BY GIVING STREETS BACK TO **PEOPLE**

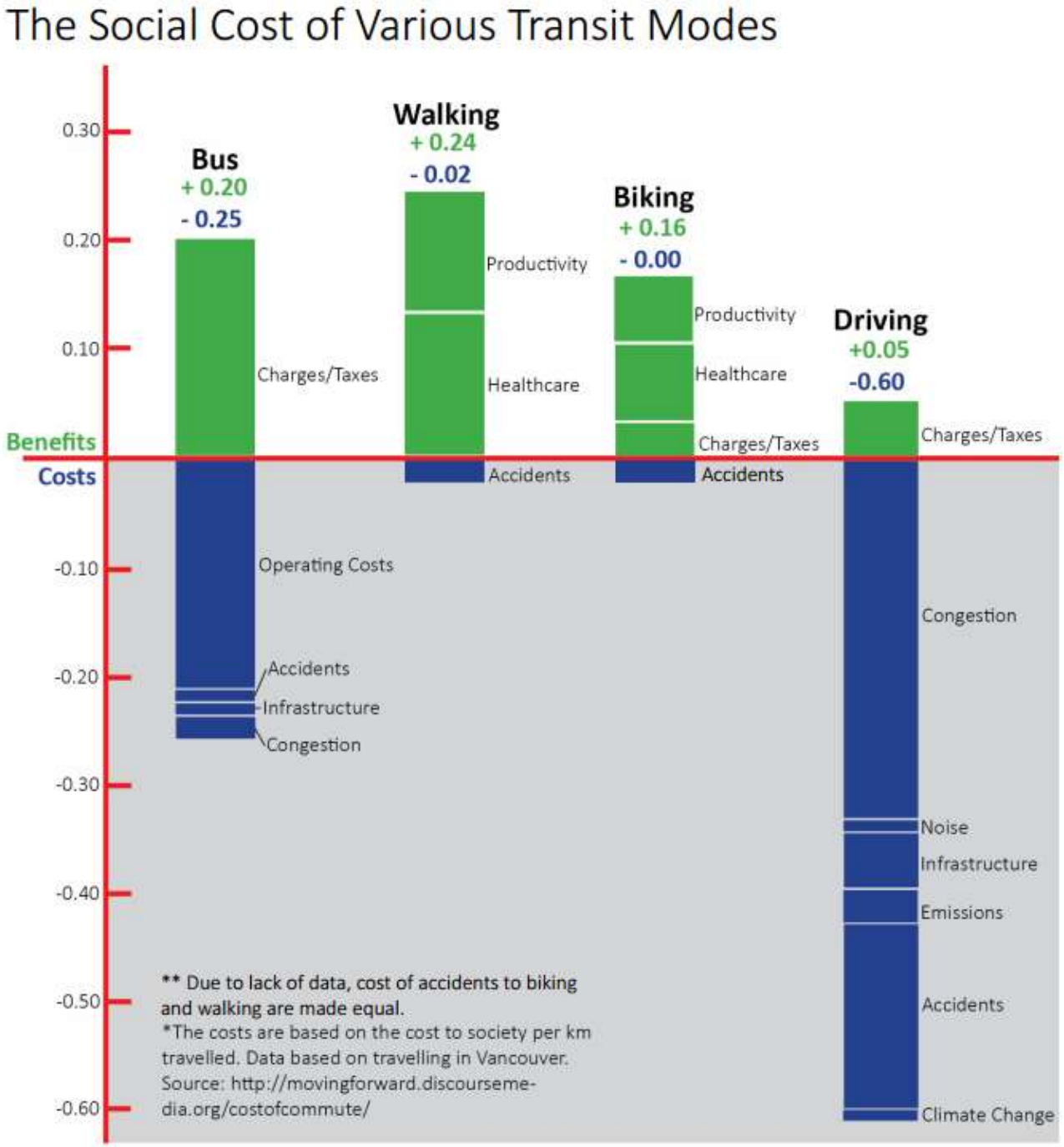
1. URBAN GROWTH BOUNDARY
2. TOD
3. MIXED-USE
4. SMALL BLOCKS
5. PUBLIC GREEN SPACE
6. WALKING AND BIKING
7. PUBLIC TRANSIT
8. CAR CONTROL
9. GREEN BUILDINGS
10. RENEWABLE AND DISTRICT ENERGY
11. WASTE
12. WATER

GUANGZHOU BRT: 850,000 PASSENGERS DAILY

✗ BEFORE

✓ AFTER

1. URBAN GROWTH BOUNDARY
2. TOD
3. MIXED-USE
4. SMALL BLOCKS
5. PUBLIC GREEN SPACE
6. WALKING AND BIKING
7. PUBLIC TRANSIT
8. CAR CONTROL
9. GREEN BUILDINGS
10. RENEWABLE AND DISTRICT ENERGY
11. WASTE
12. WATER



IV. A VISION FOR HUMAN HABITATS

PSYCHOGEOGRAPHY

a whole **toy box** full of playful, inventive strategies for exploring cities... just about anything that takes pedestrians off their predictable paths and jolts them into a new awareness of the urban landscape

PROBLEMS

BAD URBAN PLANNING

SILOED RESEARCH METHODOLOGIES

LACK OF INTEGRATED/SYSTEMS ANALYSIS

PATH DEPENDENCY
- CAR-CENTRIC MODEL
- BUILT ENVIRONMENT

INSUFFICIENT DATA COLLECTION/DATA ANALYSIS ON THE "RIGHT" VARIABLES

NOW
GDP
PRODUCTIVITY
CONVENIENCE
DRIVING
UTILITY

INSTEAD?
HEALTH
CONTINUOUS DRIFTING
PLAY AND DISPLAY
EXPLORATION
ART

The Levy to MOVE SEATTLE

Approved by voters in November 2015, the 9-year, $930 million Levy to Move Seattle provides funding to improve safety for all travelers, maintain our streets and bridges, and invest in reliable, affordable travel options for a growing city.

The levy provides roughly 30% of the City's transportation budget and replaces the 9-year, $365 Bridging the Gap levy approved by voters in 2006.

The levy aims to take care of the basics, while also investing in the future with improvements to move more people and goods in and around a growing Seattle. An oversight committee made up of Seattle residents, appointed by the Mayor and City Council, will monitor levy expenses and revenues, review program and project priorities, and make recommendations to the Mayor and City Council on how to spend levy proceeds.


Home
About
Projects
Boston
Philadelphia
THE MAYOR'S OFFICE OF
NEW URBAN
MECHANICS

Oakland Super Heroes Mural Project

A Project of ArtEsteem

510-652-5530

Home Press Sponsors Murals **Donate Today**

Introduction Our Goal Pr

Architecture is the simplest means of articulating time and space, of modulating reality, of engendering dreams.

Ivan Chtcheglov

http://www.richardhellergallery.com/dynamic/artwork_detail.asp?ArtworkID=2236

thanks!

be my friend:
cc huang / desireasflux

KEY IDEAS:

- DO WHAT IS GREAT WHEN IT IS SMALL
- SCIENCE AND DESIGN
- INTEGRATION/SYSTEMS THINKING
- JAN GEHL
- JANE JACOBS
- UNIVERSAL HUMAN TRAITS
- HUMAN-SCALE
- PSYCHOGEOGRPAHY
- PLAY AND DISPLAY
- DADA CITY
- “HUMAN HABITAT”