

The Challenge Ahead





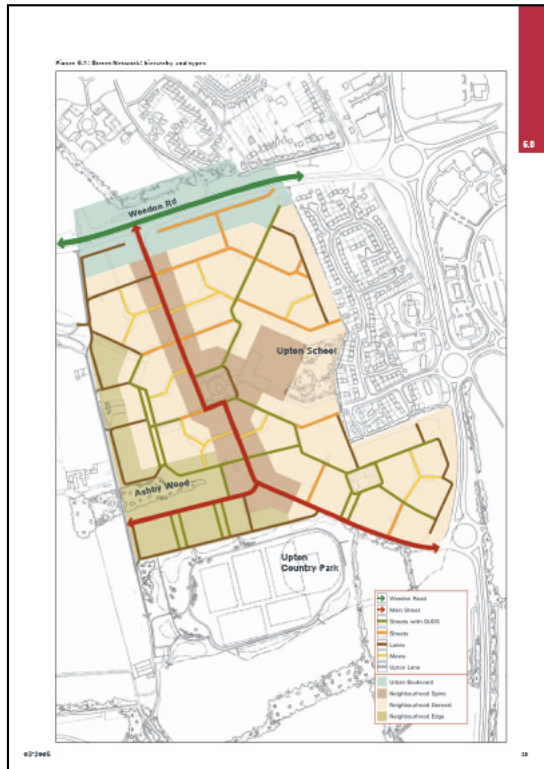
Foundation Projects: Evolving Tradition



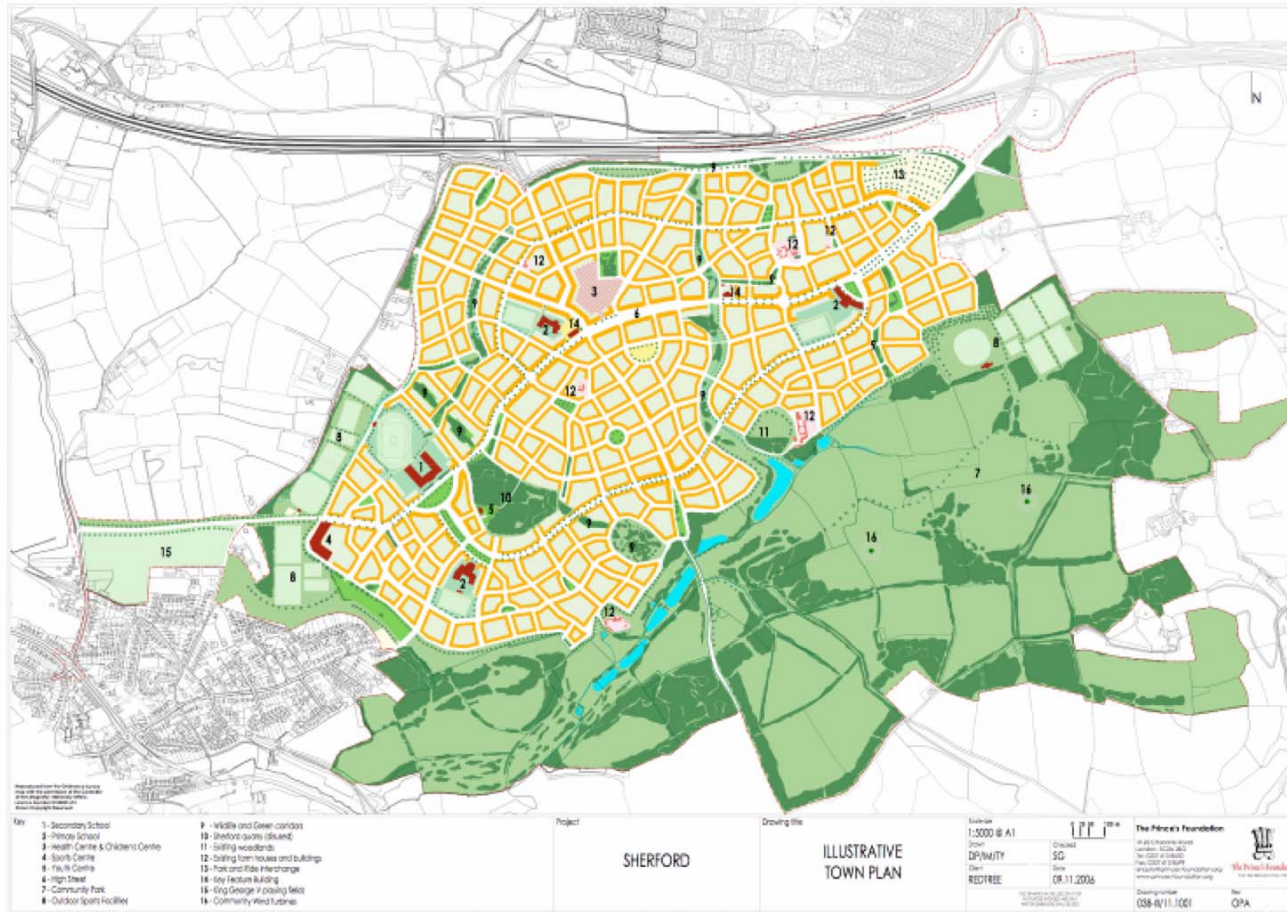
Poundbury: Leon Krier & The Duchy of Cornwall



Upton: Prince's Fdtn, EDAW, English Partnerships



_Sherford



Prince's Foundation with Paul Murrain

Walthamstow

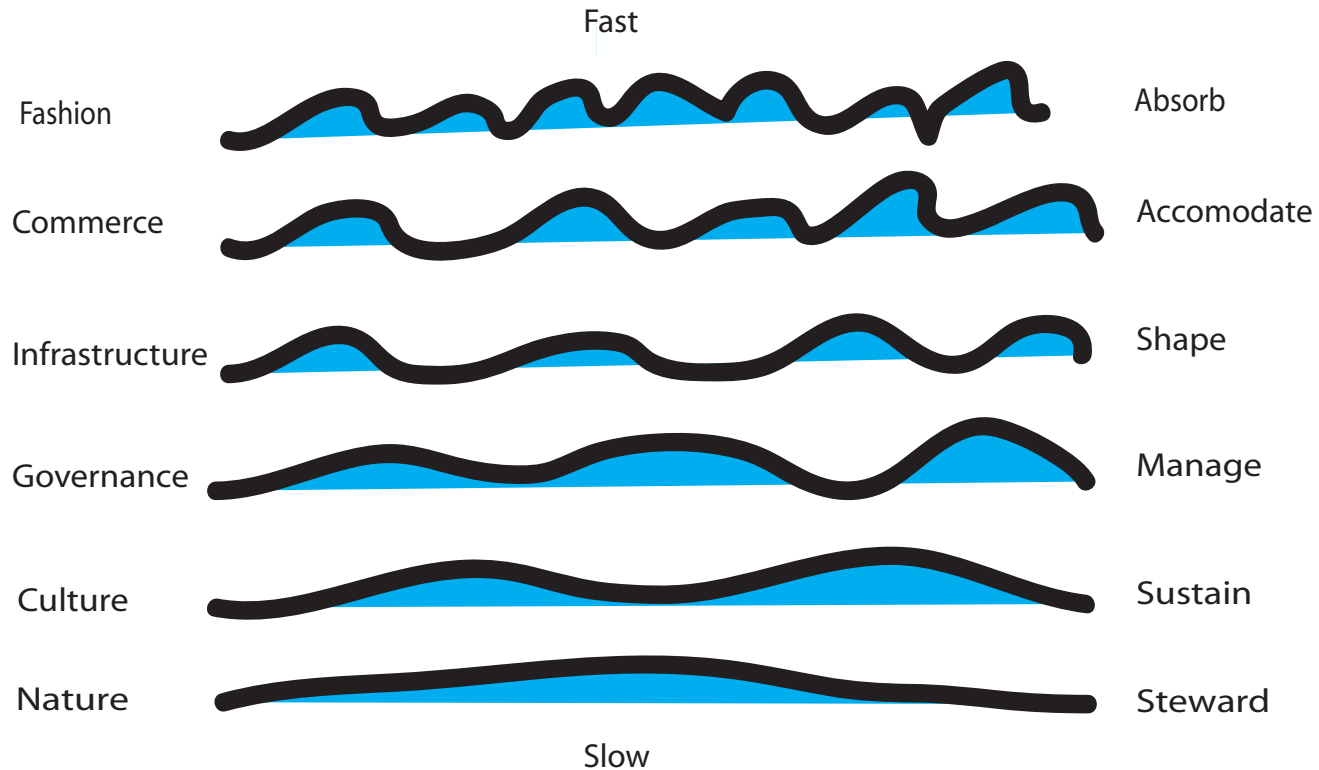


Gregory Bateson



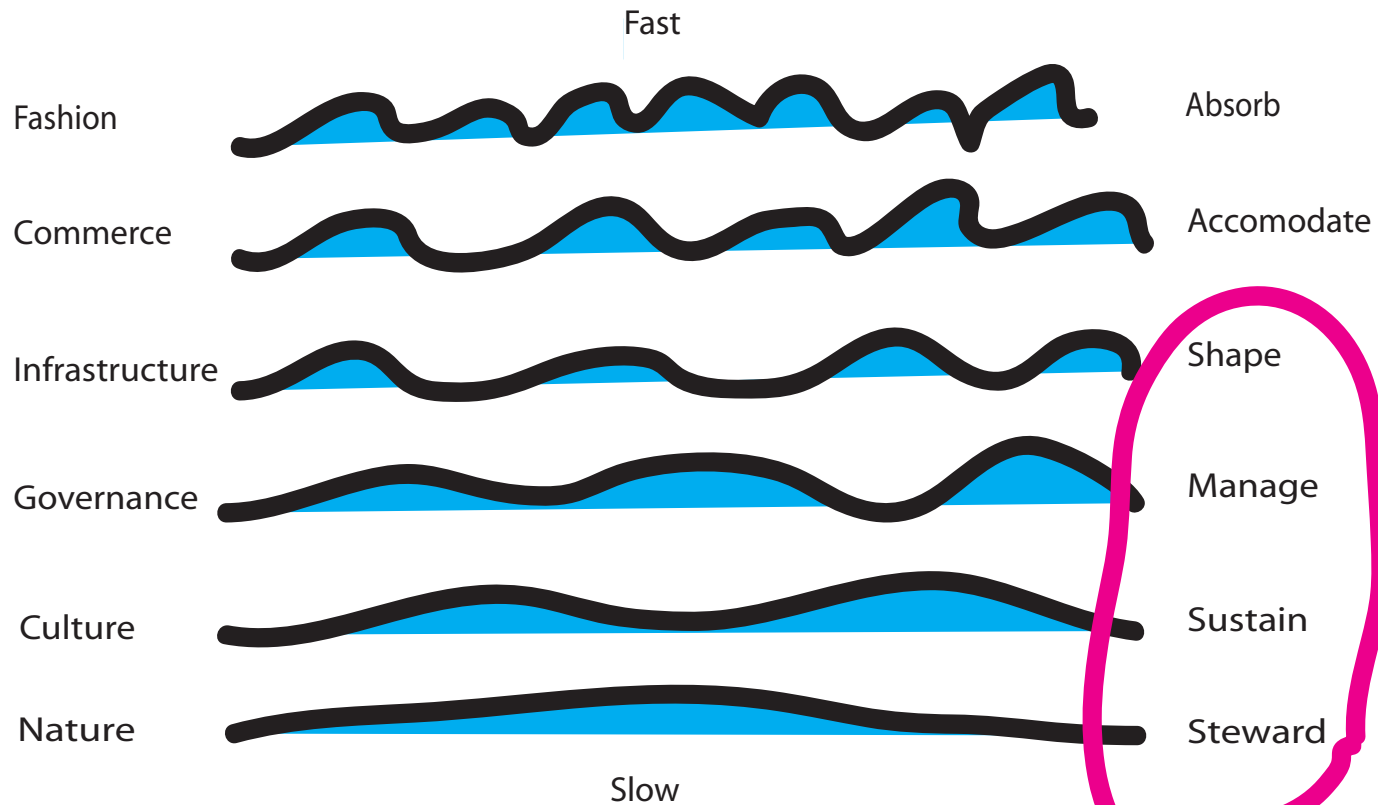
“a single system of environment combined with high human civilization, in which the flexibility of the civilization shall match that of the environment to create an ongoing complex system, open-ended for slow change of even basic characteristics.”

How Cities Learn, Adapted from Stewart Brand



Rates of Change in Cities and Towns

Green Urbanism: Reinforcing the Slow Parts



Rates of Change in Cities and Towns

Green
Urbanism

An Iterative Ecological Design Process

	Geology	Water	Habitat	Landscape	Food & Farming	Urbanism	Materials	Energy	Use & Reuse
Steward	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Cyan	Cyan	Cyan
Sustain & Renew	Cyan	Cyan	Cyan	Cyan	Cyan	Cyan	Purple	Purple	Purple
Shape & Conserve	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple	Purple

Key to Stages



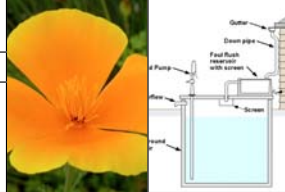
Project Scoping	Yellow
Master Planning	Cyan
Design & Implementation	Purple

Water

Water

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Integrating and managing water and water systems is key to ecological development. Conventional development practices tend to treat water as a resource to be mined, channeled, used and discarded, rather than a renewable and renewing resource.




Steward		Flood risk map for Swanpool, Lincolnshire
Project Stage: Scoping		
Issue: Relate human settlement pattern to watershed, groundwater table & elevation		
Tasks: Identify flood risk now and projected, elevations, understand water flow on site, identify areas appropriate for development, understand recharge, capacity and water quality issues.		
Sustain: regenerate & renew		Sustainable urban drainage & street at Upton, Northampton
Project Stage: Charrette & Masterplanning		
Issue: Manage water on site		
Tasks: Maximise groundwater recharge, relate drainage to transect, preserving surface flow where appropriate, and relating to ground cover.		
Shape		Rainwater catchment system.
Project Stage: Design and Implementation		
Issue: Water conservation		
Tasks: Water conserving appliances, rainwater and greywater systems, planting appropriately, maintenance of SUDs		

Food and Farming

Food and Farming

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Our relationship with food is an intimate one, and the relationship between agriculture and the city or town should be equally intimate. The farmer's market, the allotment, and the productive countryside are as much a part of the city region as the square, the church or the pub.




Steward	Soil Resource Map, Somerset and Devon
Project Stage: Scoping	
Issue: Relate proposed settlement to farming and food production	
Tasks: Assess soil resource, ongoing food production, determine whether human settlement can take place	
Sustain: regenerate & renew	Allotment, Darlington, UK
Project Stage: Master planning	
Issue: Relate urbanism to food production, applying the transect	
Tasks: Local sustainability strategy; locate allotments, gardens, community supported agriculture & window boxes in appropriate place in transect.	
Shape	Saturday market at Poundbury, Dorset.
Project Stage: Design and Implementation	
Issue: Celebrate and integrate community with a local food culture	
Tasks: Farmer's markets, buying clubs, slow food convivia and garden centres.	

Energy

Energy

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We are trapped in a cycle where energy use means fossil fuels and fossil fuels mean carbon emissions. Breaking out of this cycle will involve designing communities where accessibility rather than mobility is valued, where our buildings require little or no energy to heat or cool, and where we both conserve energy and utilise renewable sources.

Steward	Solar map of the United Kingdom
Project Stage: Scoping	
Issue: Understand local energy resources: biomass, solar, wind and water	
Tasks:	
Sustain: regenerate & renew	"Quiet Revolution" Vertical Axis Wind Turbine
Project Stage: Master Planning	
Issue: Create a sustainable energy strategy	
Tasks: Define and scale technologies to the development, utilising local, renewable sources and generation as much as practicable.	
Shape	Caption here:
Project Stage: Design & Implementation	
Issue: Reduce demand through design and management	
Tasks: Employ simple, hackable passive design of buildings, utilising thermal-mass; reduce embodied energy through local sourcing, materials selection and recycling, develop conservation strategies	

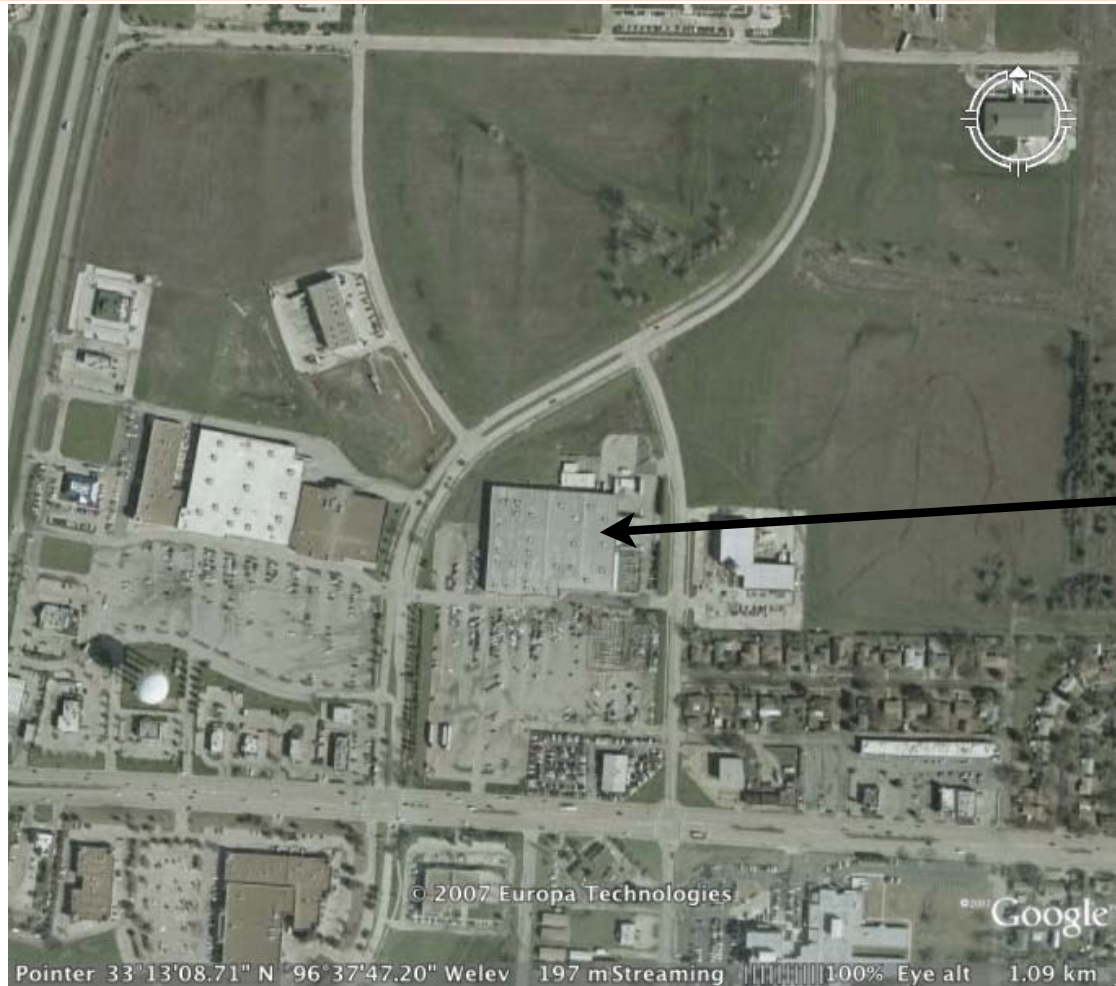
Three Green Fallacies

1. The Green Object: ignoring context
2. The Green Skyscraper: too much of a good thing
3. Hard Wired Solutions: the programme is not the generator

The Green Object



The Green Object in a Sea of Asphalt

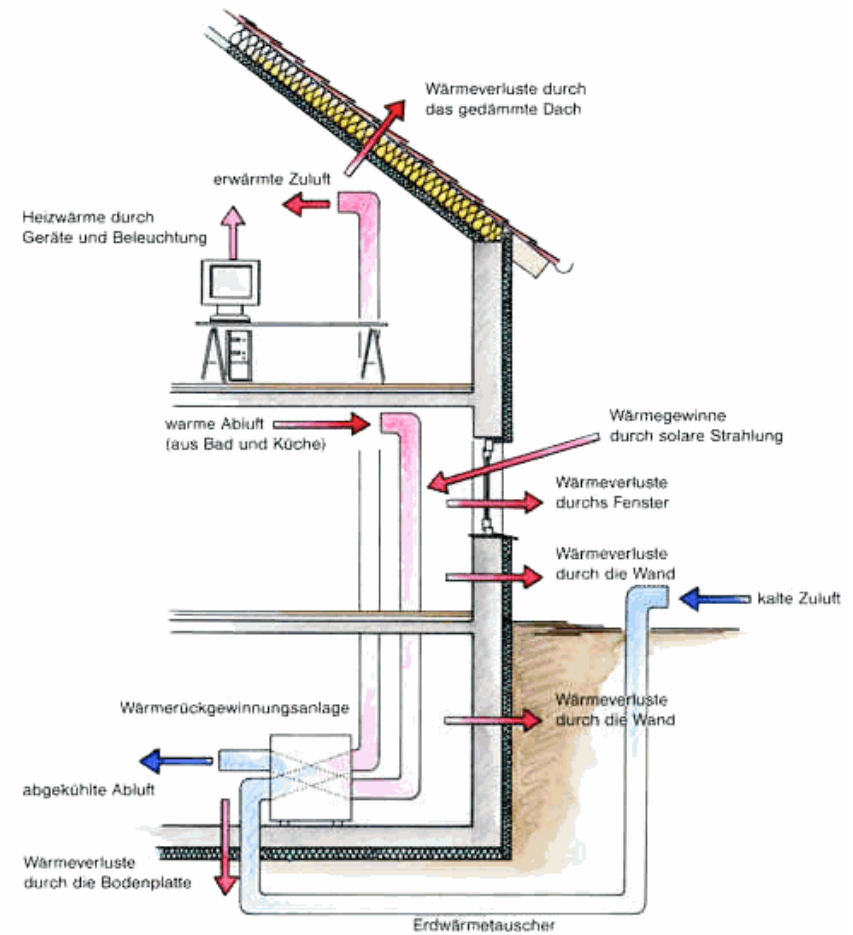


“Green Walmart”

The Green Skyscraper: Density



Hard Wired Solutions



Evolving Tradition



Nature of Building Canons

The Nature of Building Canons

Sustainable Architecture & Urbanism Principles

WHEREAS global climate change and global urbanisation pose imminent threats to the viability of human settlement, the food supply, biodiversity and water and air quality.
WHEREAS together, the transportation and building sectors account for the majority of energy usage and hence, carbon emissions, making the totality of the built environment essential to any environmental solutions.
WHEREAS these environmental problems are also problems of equitable development, and holistic solutions must embrace poverty, health and underdevelopment as well as ecology and environment.
WHEREAS efforts such as new and traditional urbanism, LEED, and modern green architecture have made great strides in resource and energy efficiency, they alone are insufficient and are often at odds with one another in tackling this challenge.
WHEREAS town, neighborhood and building design, materials use and construction practice coupled with resource conservation are all equally important.
THEREFORE be it resolved by those here assembled that a new movement for a truly sustainable culture is needed.
SUCH A culture must be global in scale and information sharing, but local in application.
THIS NEW sustainable design culture must engage fully and simultaneously at the levels of urbanism, architecture and building practice.
IT MUST embrace the fact that human interventions in the built environment tend to be long lived and have long lived impacts. This implies that they must be designed and costed for long life and permanence rather than transience.
WE MUST design for internal adaptability and flexibility within the envelope of basic, open-ended yet slowly evolving building morphologies and typologies to enable the reuse and recycling of the fabric of the city, the neighbourhood, the block and the building to accommodate growth and change on the one hand, and long use on the other.
THU sustainable design must be rooted in and evolve from local adaptations derived

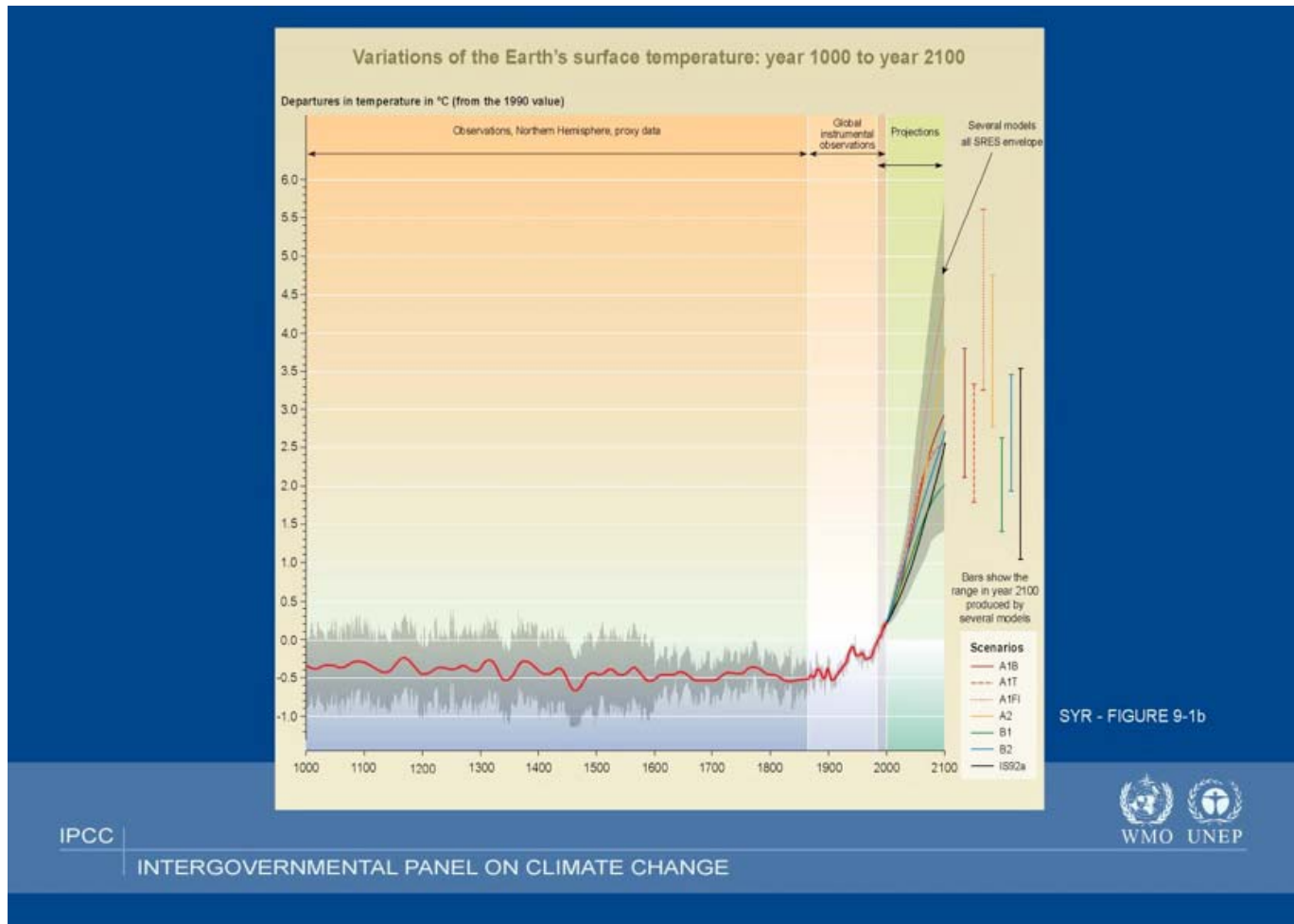
2.1 Billion More People in Cities by 2030



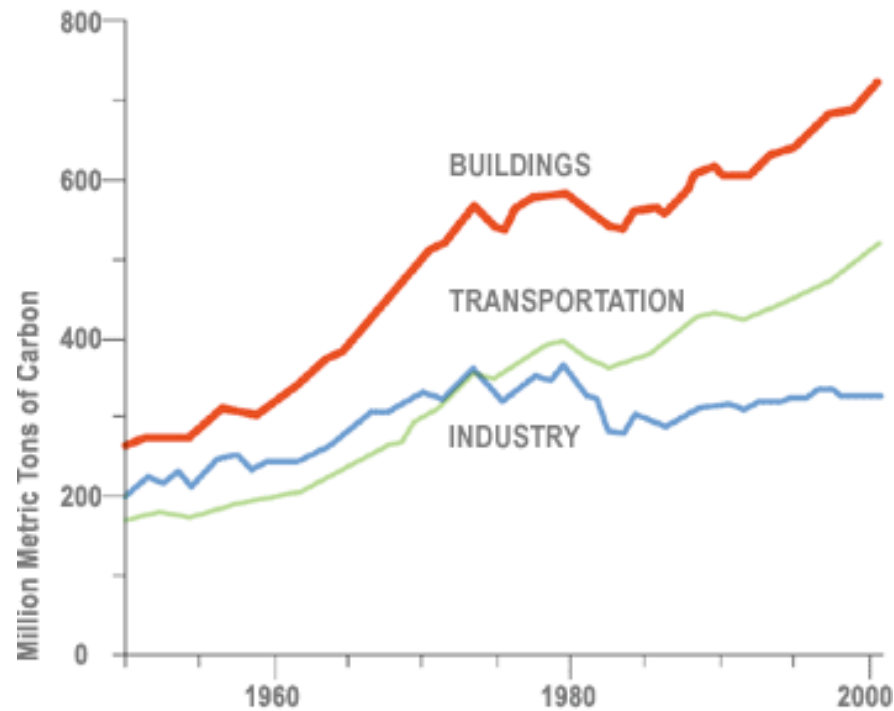
at Night
information available at:
antwrp.gsfc.nasa.gov/apod/ap001127.html

Astronomy Picture of the Day
2000 November 27
<http://antwrp.gsfc.nasa.gov/apod/astropix.html>

IPCC: Rise in Global Temperature



Architecture 2030: CO2 Emissions



Architecture 2030: source unknown

Energy Use: US and UK

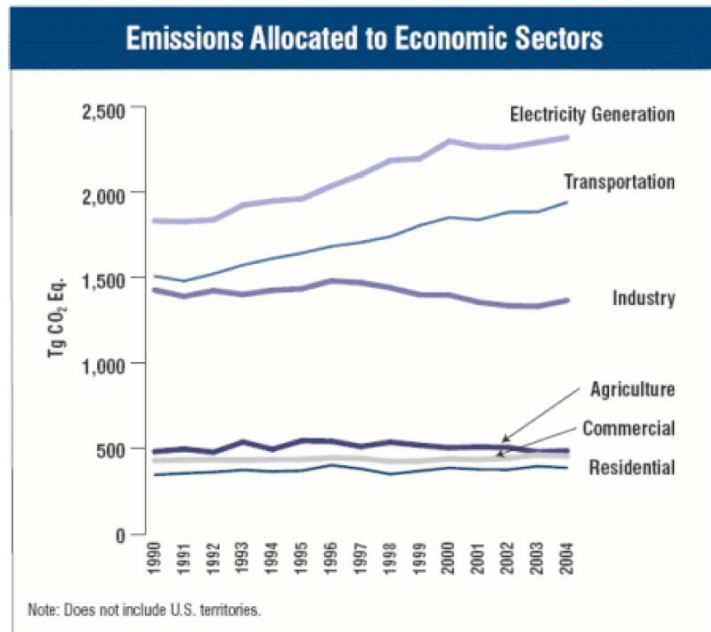
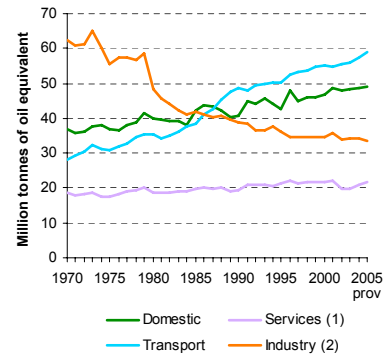


Chart E11.2:
Final energy consumption by sector, 1970 to 2005



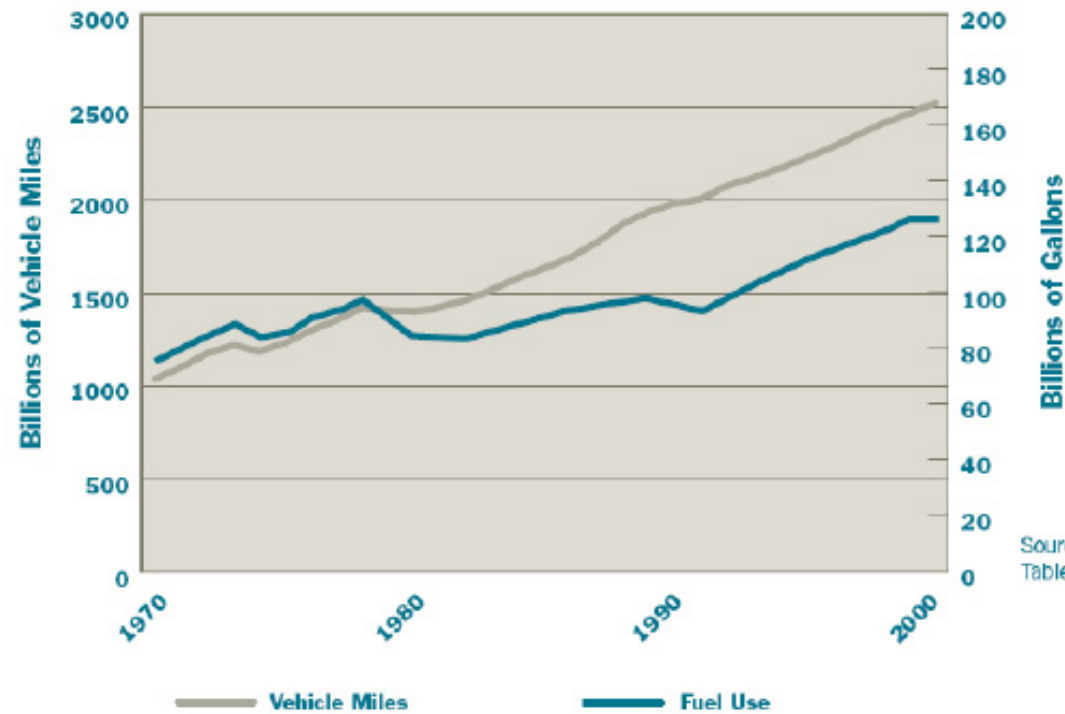
(1) Services include the commercial sector, public administration and agriculture.
(2) Industry includes construction.

Source: Department of Trade and Industry

- Transport has been the biggest single energy user in the UK for the past 18 years. It accounted for 36% of final energy use in 2005.
- Households are responsible for 30% of final energy use, whilst industrial consumption accounts for 21%.
- The remaining 13% of final energy is used by the services and agriculture sector.

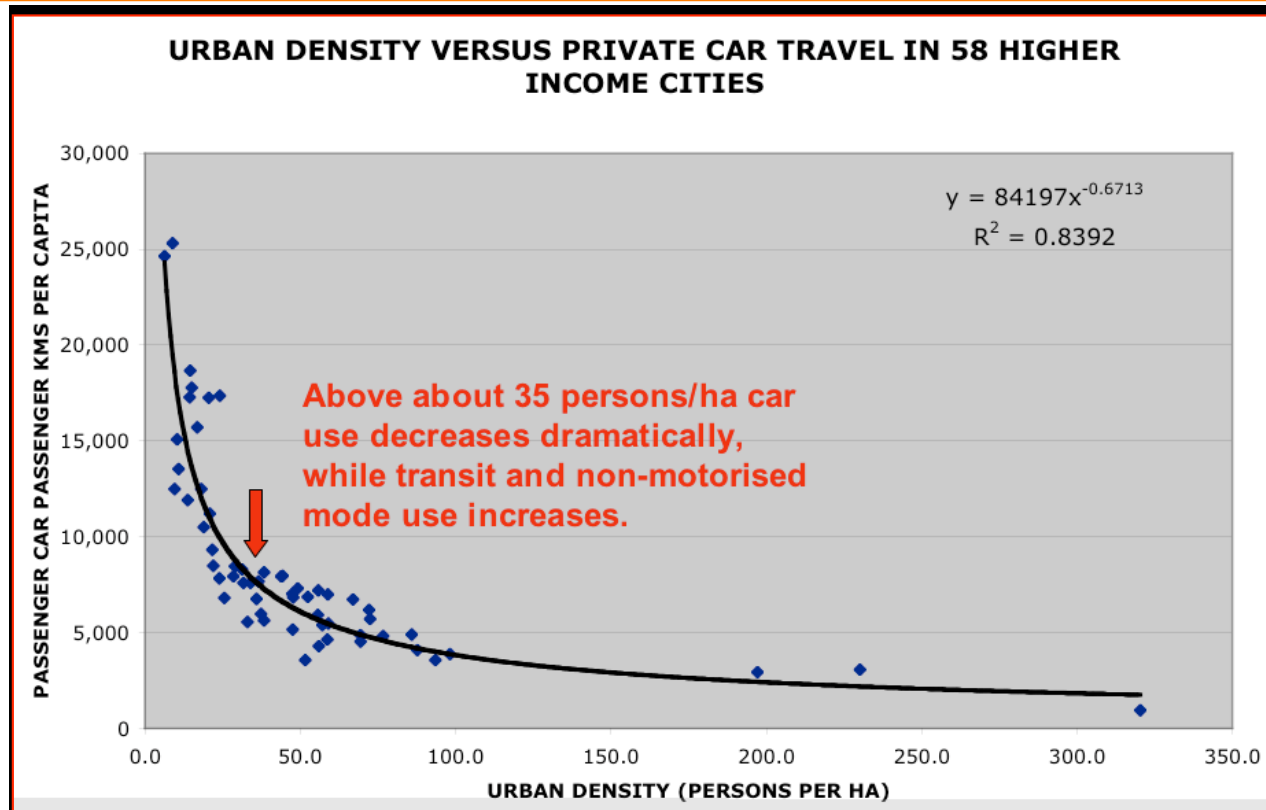
Trends in Auto Travel: UK and US

Passenger Car and Light Truck **Travel and Fuel Use**



Source: Davis, S.C. and S. Diegel (2002),
Tables 7.1 and 7.2.

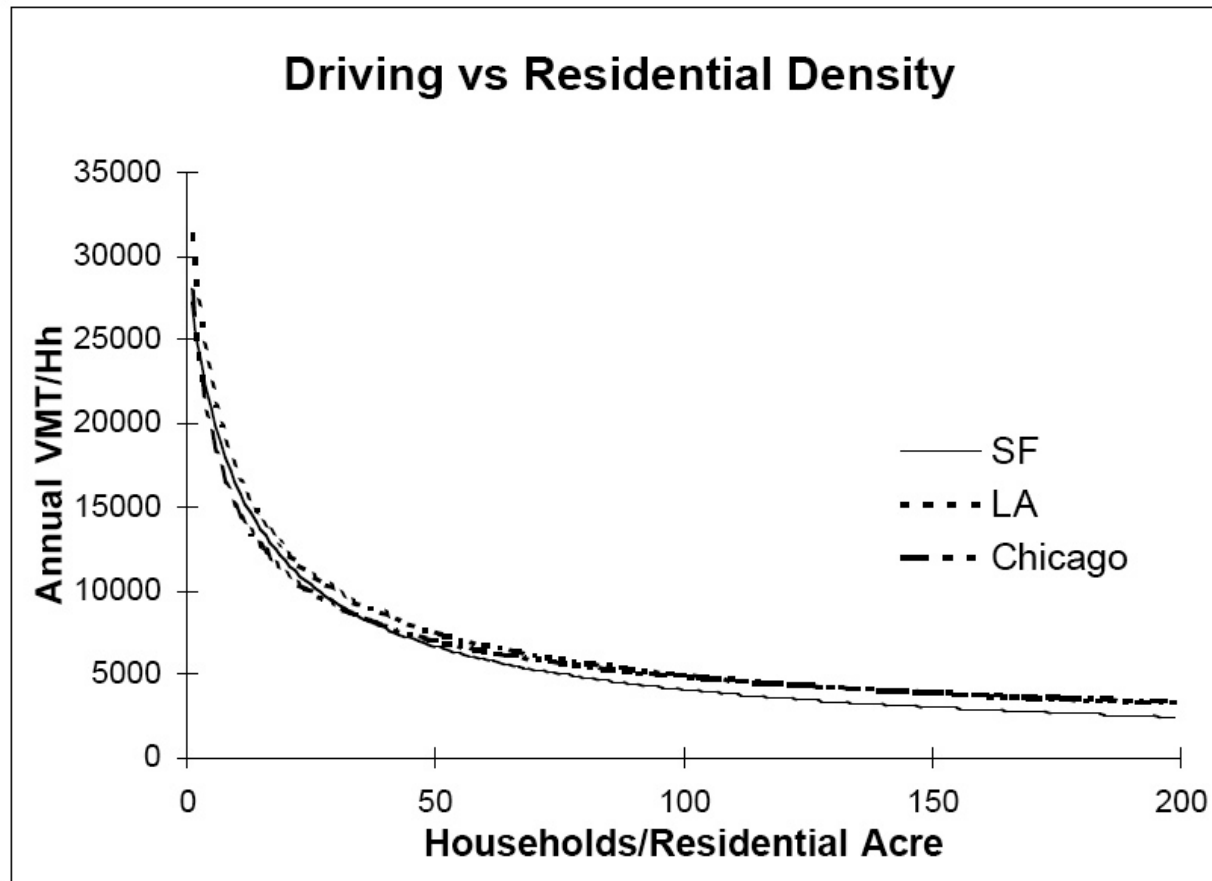
Location Efficiency



Urban density is critical to sustainable transport and how we achieve higher densities will largely determine how sustainable and livable the city will be.
35 persons per ha = 14 persons per acre

Jeff Kenworthy, 2006.

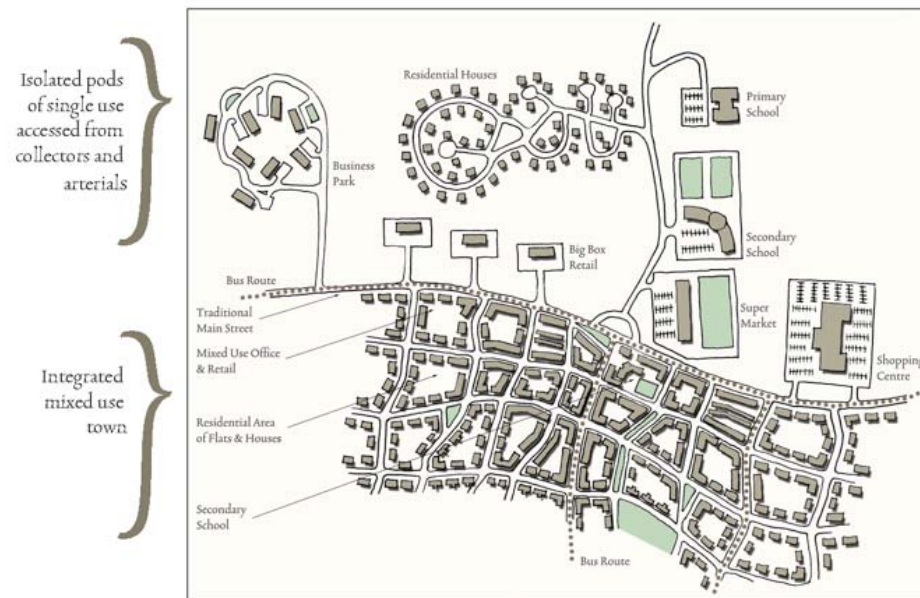
Location Efficiency



Holtzclaw, Clear & Dittmar 2002.

Density, Connectedness, Access to Public Transport

CONTEMPORARY SUBURBAN MODEL



SUSTAINABLE URBANISM

Engage Urbanism, Architecture & Building



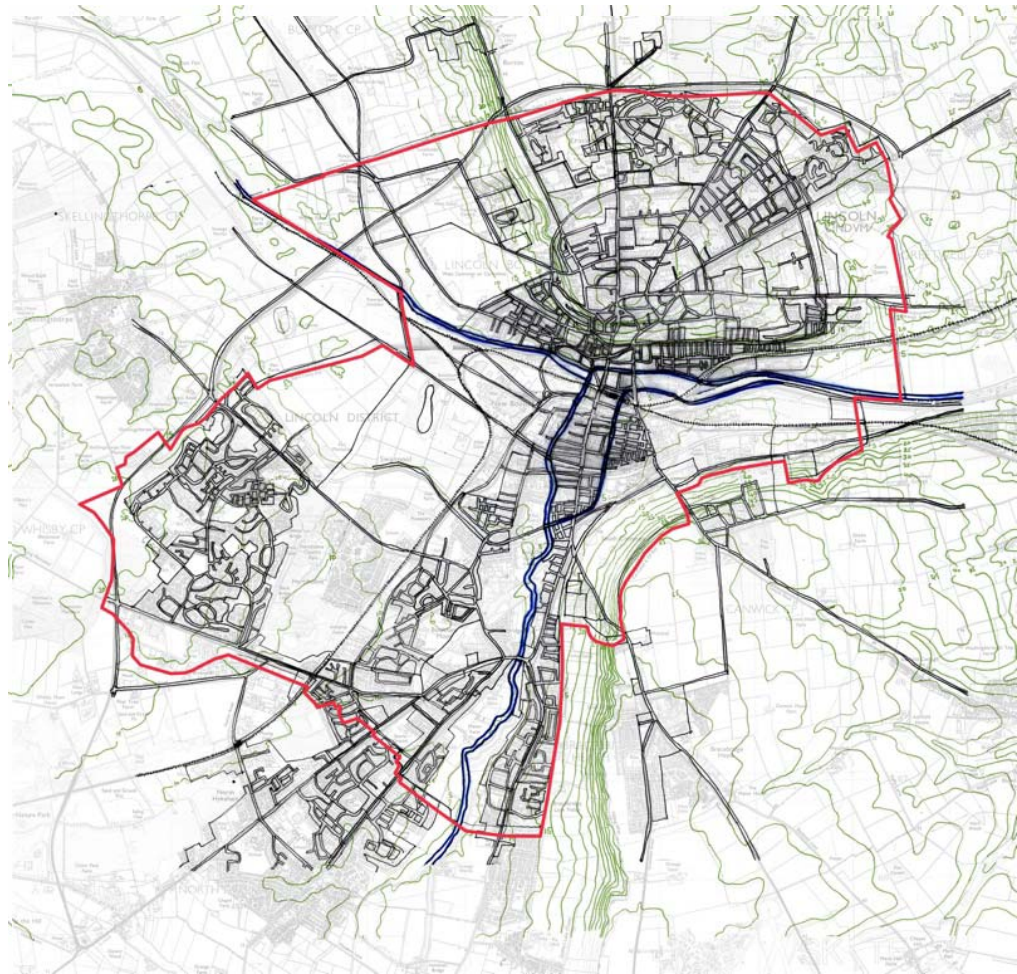
Long-Lived



Basic, Open-Ended



Slowly Evolving



Local Adaptation



Preserve Urban and Natural Relationships

