THE ESTATE MATRIX

APPENDIX ONE

THE SHAPE OF THE FUTURE CHAPTER 1 BOX 2

INDUSTRIALIZATION, URBANIZATION AND THE HUMAN SETTLEMENT PATTERN

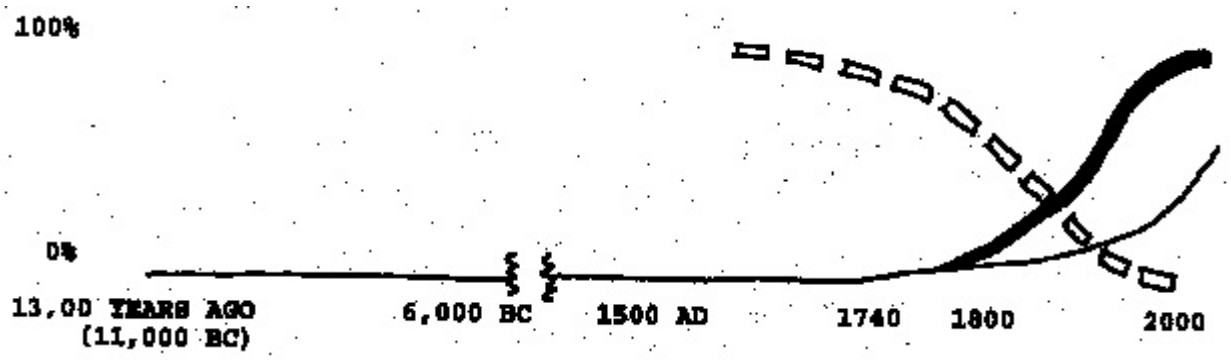
When the urbanization of human activity began, it affected only an insignificant fraction of the total human population. Urban forms have become progressively more extensive, complex and dominant. This is because as civilization advanced there has been a growth of urban activity and an atrophying of nonurban activity. At the same time, the need for land for individual humans has decreased dramatically. These two facts have changed the human settlement pattern in fundamental and dramatic ways that are not yet reflected in citizen understandings.

The graphic below provides an overview of the impact of urbanization in the United States (and the First World) over the last 13,000 years. This is the timespan since the retreat of glaciers from the last major ice age.

The solid lines indicate the percentage of the human population whose lifestyle and prosperity are dependent on urban activities. The heavy solid line represents the United States and the European Union.

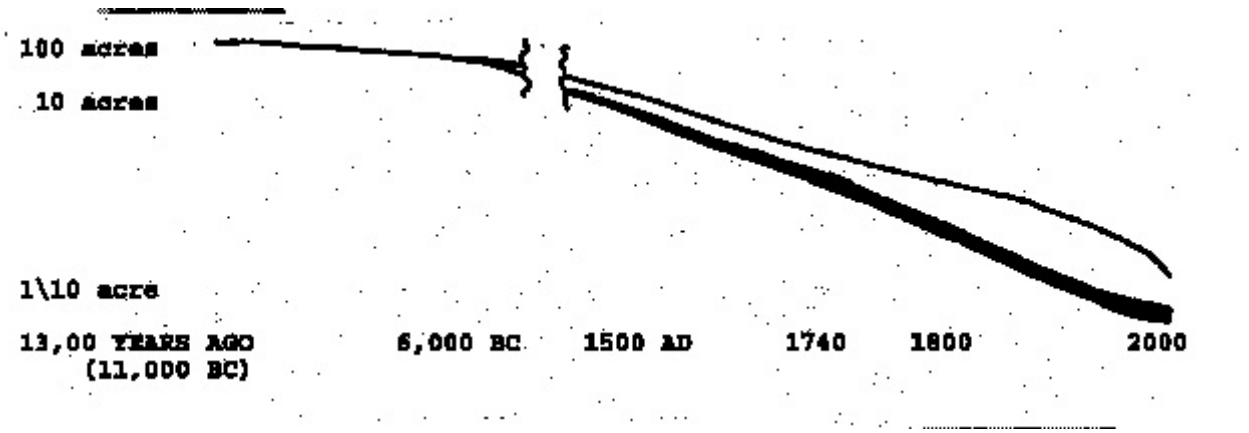
The fine solid line represents the same parameter for the total human population of the Earth. The urban population of the world lags behind but reflects the same growth curve as the United States and the First World. The fine line is also an approximate representation of the growth in total population of the Earth.

The dashed line indicates the percentage of the population of the United States whose lifestyle and prosperity are dependent primarily on nonurban activities. This cohort is limited to hunting and gathering unmanaged wild game, fish, herbs and fibers, some forestry and some of the non-industrialized agriculture. The markets for these products and the social and economic lifestyles of the individuals and families even in this small population are overwhelmingly driven by urban parameters throughout the First World.



Prior to 1740 (the approximate start of the Industrial Revolution), it was the sovereign, the church or some other elite class that made most of the decisions impacting human settlement pattern. Industrialization, urbanization, democratic governance, economic competition and the resulting increase in individual freedom have enabled individuals, families and enterprises to make decisions with far-reaching collective impact on the human settlement pattern.

The second graphic with the same time frame (and the same scale discontinuity) plots the approximate land requirement per capita for the human population. This graphic reflects the fact that in general terms each person in a hunter/gatherer society required 100 acres for daily activity. In a trade/agricultural society, a person requires 10 acres, and in a contemporary urban system, an individual requires a maximum of one-tenth acre at the alpha community scale. These numbers will be further articulated in Chapter 4 and in Part Two. They are presented here to underscore the dramatic changes in the human need and use of land. They also document why, in spite of a 50X increase in population (and a 5X increase in land area) between 1800 and 2000, the total need for land for daily activities for the total population has decreased by a factor of 10 in the United States. NB: This land consumption per capita is for daily activities (a.k.a., living space). It does not include the total ecological footprint which is addressed in Chapter 23.



Again, the heavy line represents the United States and The First World. The fine line represents the total world population.

These two curves plus the reality of $A=\Pi r^2$ and the other natural laws of human settlement pattern in expanding urban systems - collectively termed Regional Metrics - provide the basis for understanding the driving forces that cause dysfunctional human settlement patterns.[20]

Chapter 1 Box 2