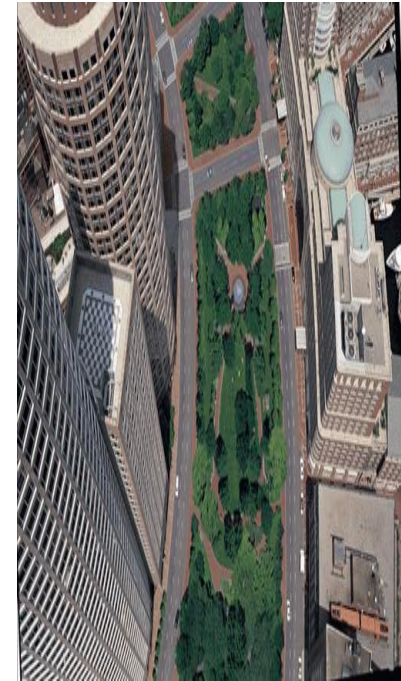


# The Ecology of Health

Chris Coutts, PhD, MPH



FLORIDA STATE UNIVERSITY DEPARTMENT OF  
**URBAN & REGIONAL  
PLANNING**

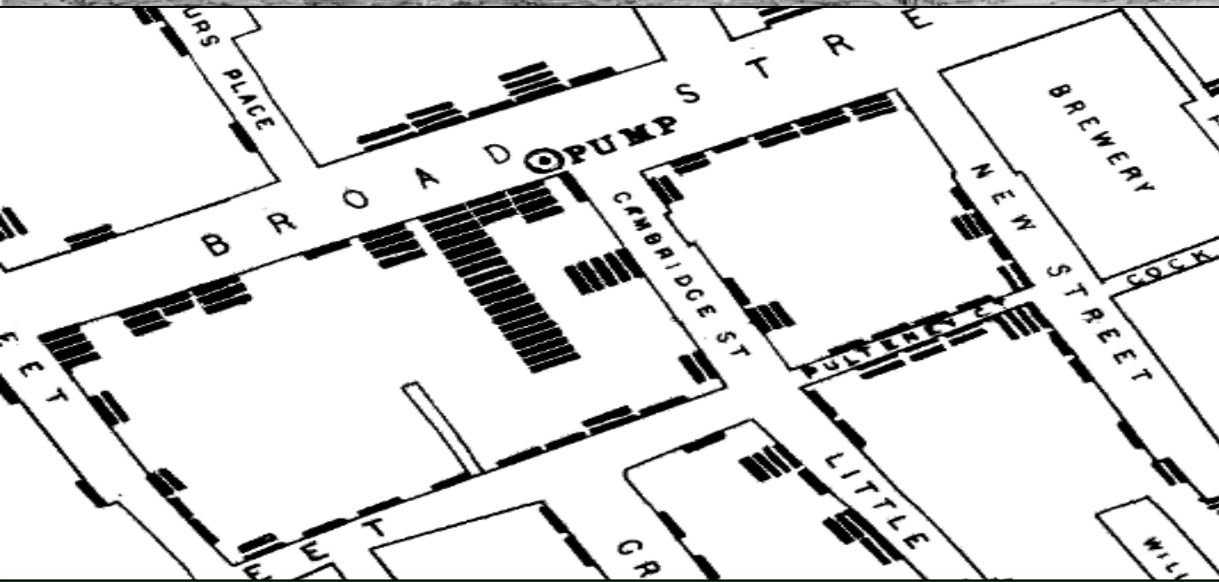






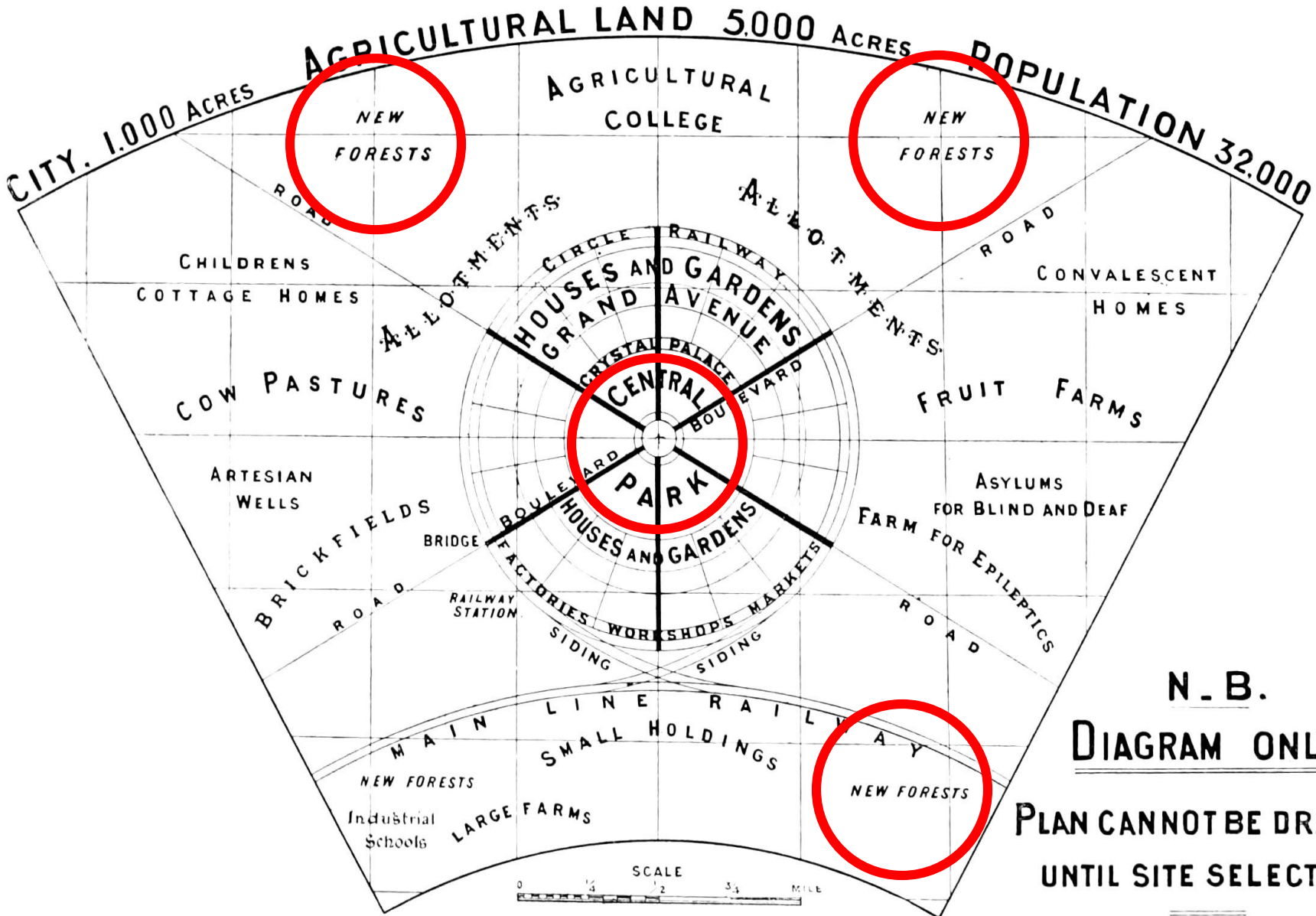








# GARDEN - CITY



**N. B.**  
DIAGRAM ONLY.  
**PLAN CANNOT BE DRAWN  
 UNTIL SITE SELECTED**



# THE THREE MAGNETS.

## TOWN.

CLOSING OUT OF NATURE. SOCIAL OPPORTUNITY,  
ISOLATION OF CROWDS. PLACES OF AMUSEMENT.  
DISTANCE FROM WORK. HIGH MONEY WAGES.  
HIGH RENTS & PRICES. CHANCES OF EMPLOYMENT.  
EXCESSIVE HOURS. ARMY OF UNEMPLOYED.  
FOGS & DROUGHTS. COSTLY DRAINAGE.  
FOUL AIR. MURKY SKY. WELL-LIT STREETS. NO PUBLIC SPIRIT.  
SLUMS & GIN PALACES. PALATIAL EDIFICES. CROWDED WELLS & DESERTED VILLAGES.

## COUNTRY.

LACK OF SOCIETY. BEAUTY OF NATURE.  
HANDS OUT OF WORK. LAND LYING IDLE.  
TRESPASSERS. BEWARE. WOOD. MEADOW. FOREST.  
LONG-HOURS-LOW-WAGES. FRESH AIR. LOW RENTS.  
LACK OF DRAINAGE. ABUNDANCE OF WATER.  
LACK OF AMUSEMENT. BRIGHT SUNSHINE.  
NEED FOR REFORM.

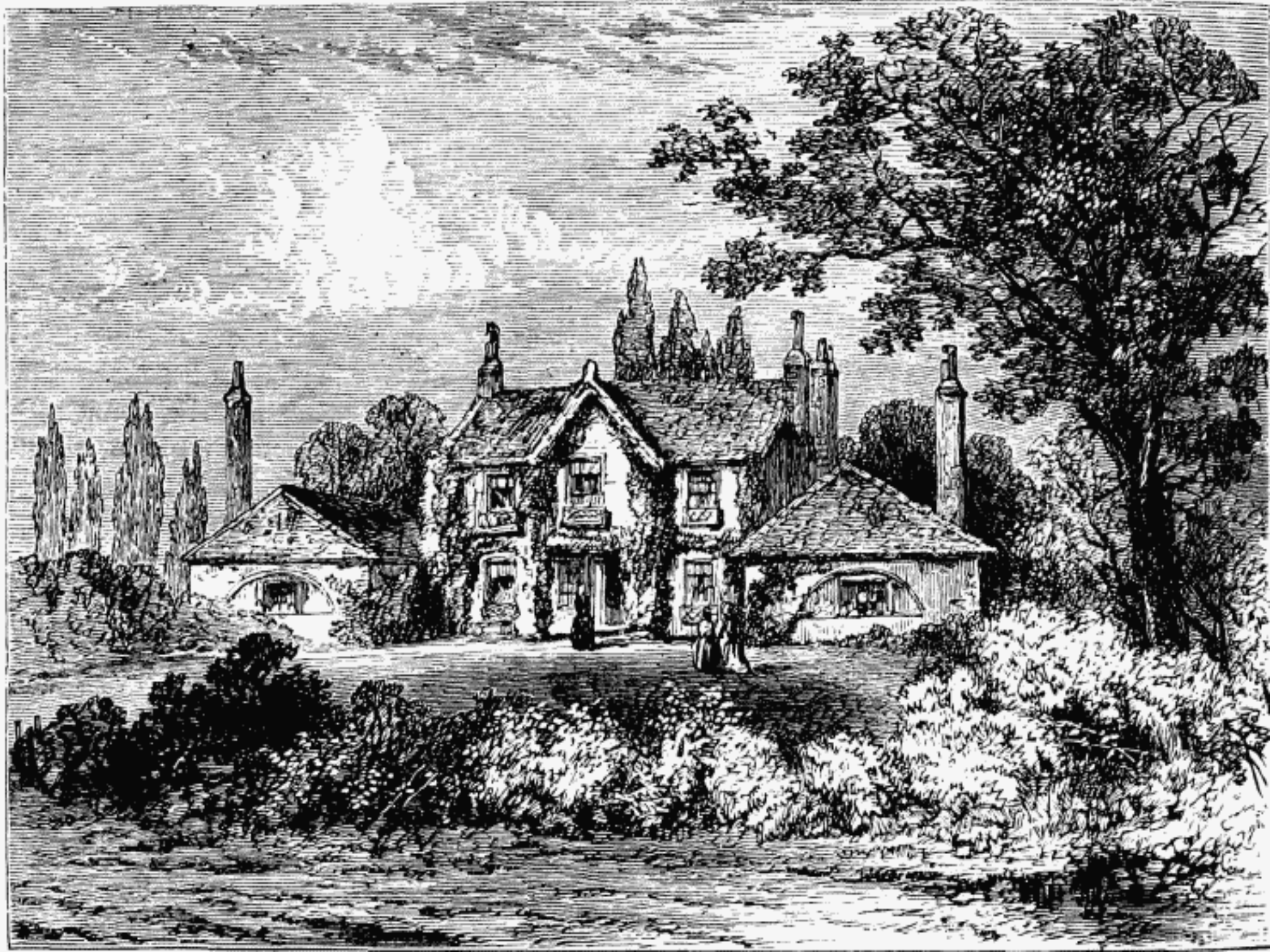
### THE PEOPLE

WHERE WILL THEY GO?

## TOWN-COUNTRY.

BEAUTY OF NATURE. SOCIAL OPPORTUNITY.  
FIELDS AND PARKS OF EASY ACCESS.  
LOW RENTS, HIGH WAGES.  
LOW RATES, PLENTY TO DO.  
LOW PRICES, NO SWEATING.  
FIELD FOR ENTERPRISE. FLOW OF CAPITAL.  
PURE AIR AND WATER. GOOD DRAINAGE.  
BRIGHT HOMES & GARDENS, NO SMOKE, NO SLUMS.  
FREEDOM, CO-OPERATION.







GERM THEORY  
AND ITS APPLICATIONS  
TO MEDICINE

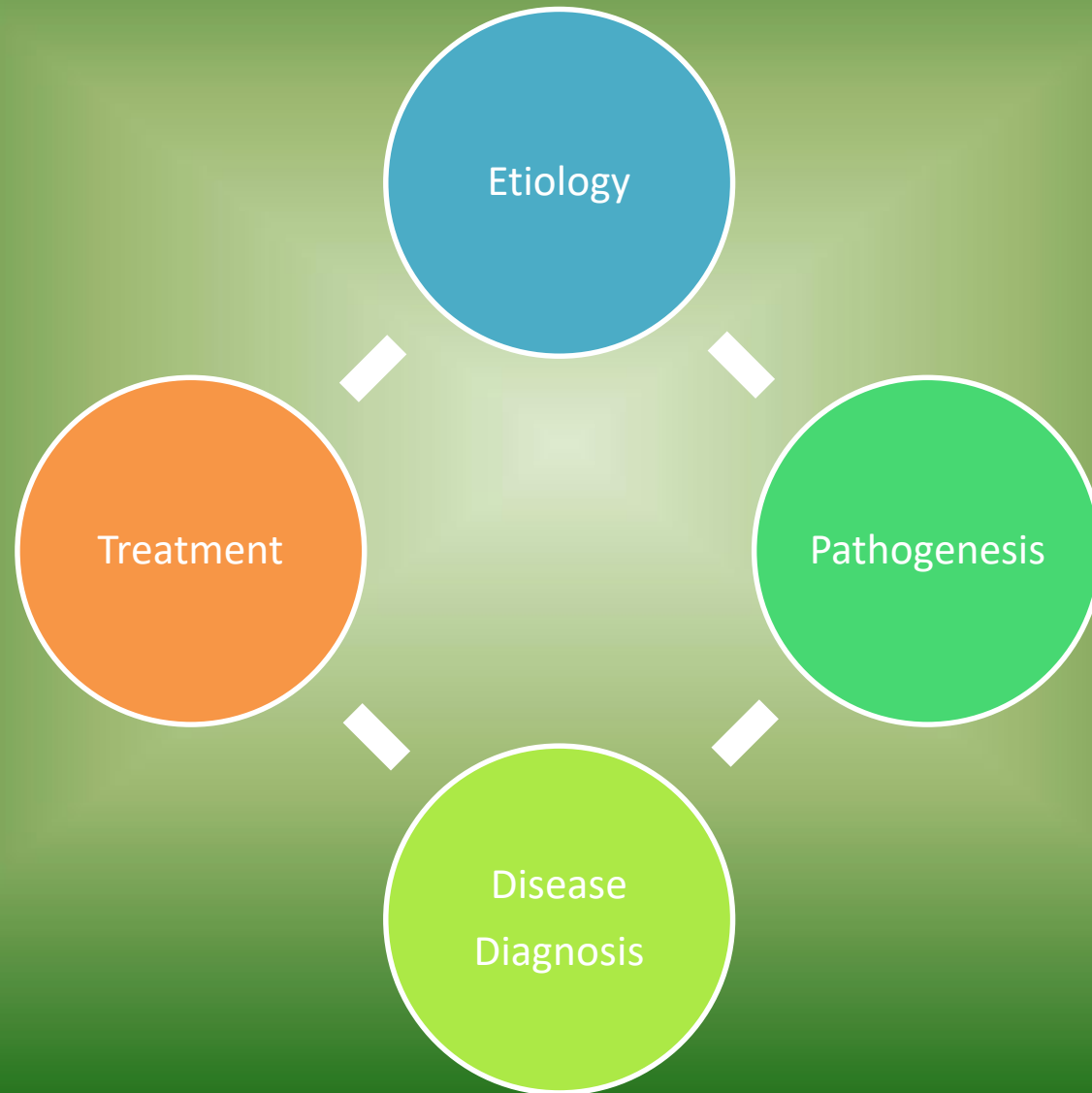
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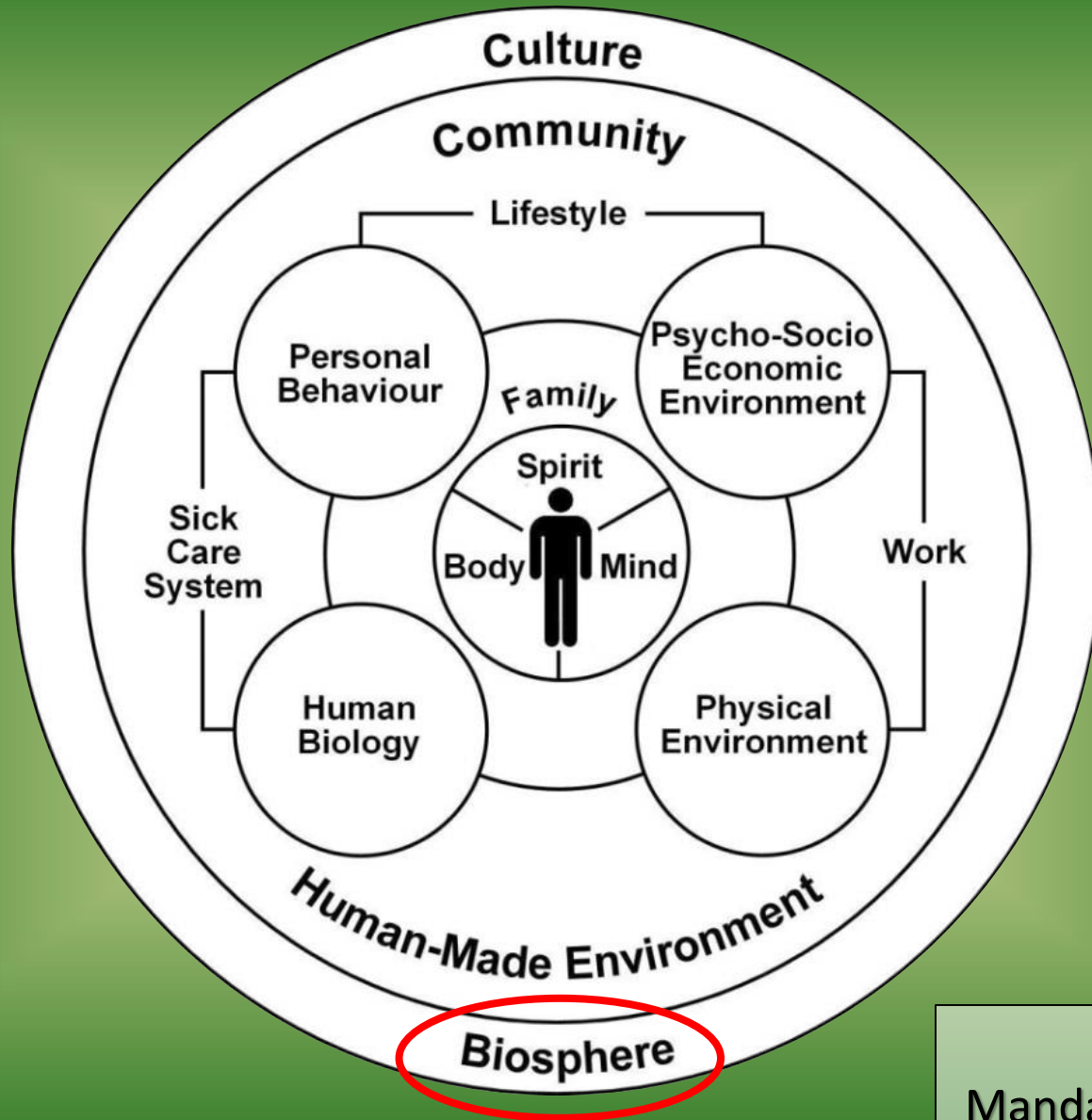
ON THE  
ANTISEPTIC  
PRINCIPLE OF THE  
PRACTICE OF  
SURGERY

LOUIS PASTEUR AND JOSEPH LISTER

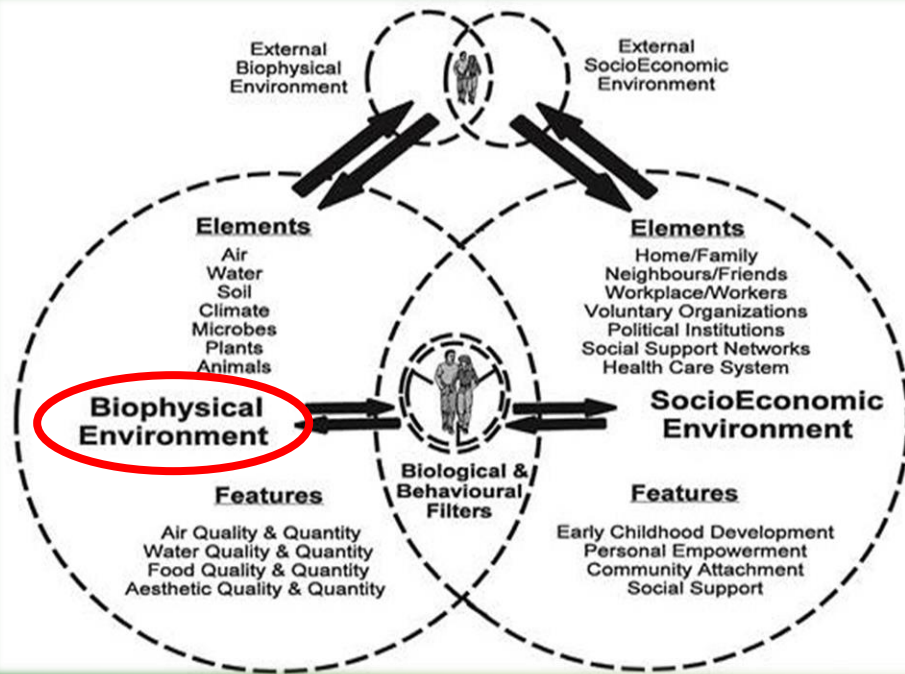
*GREAT MINDS SERIES*

# Biomedical Model



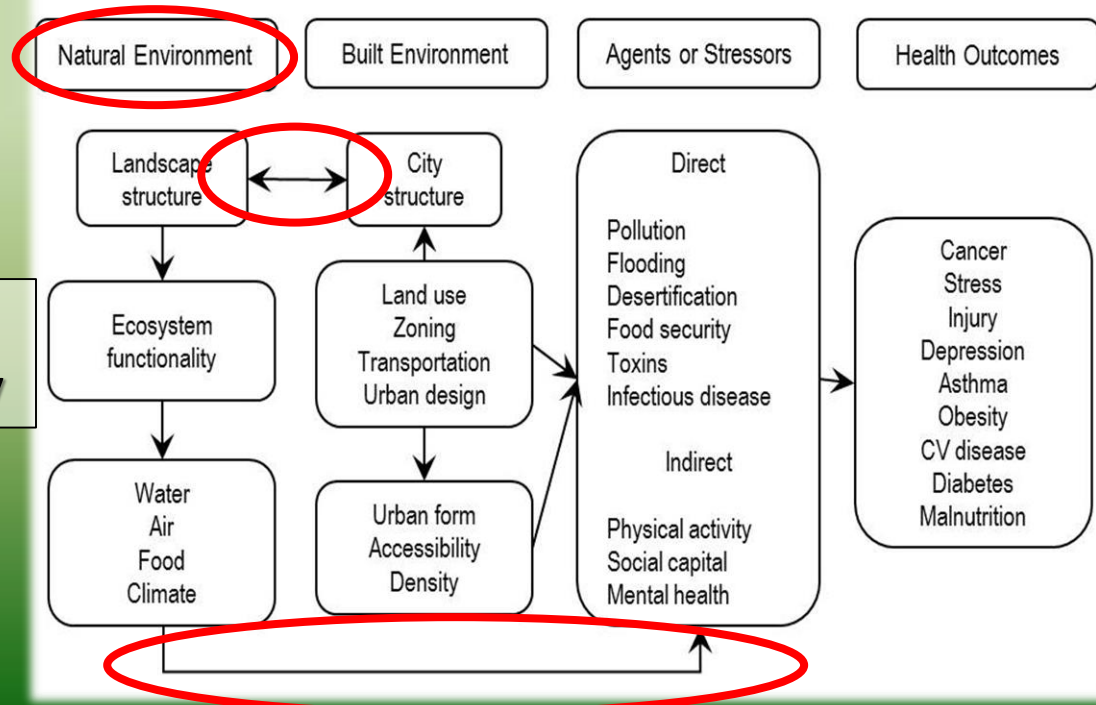


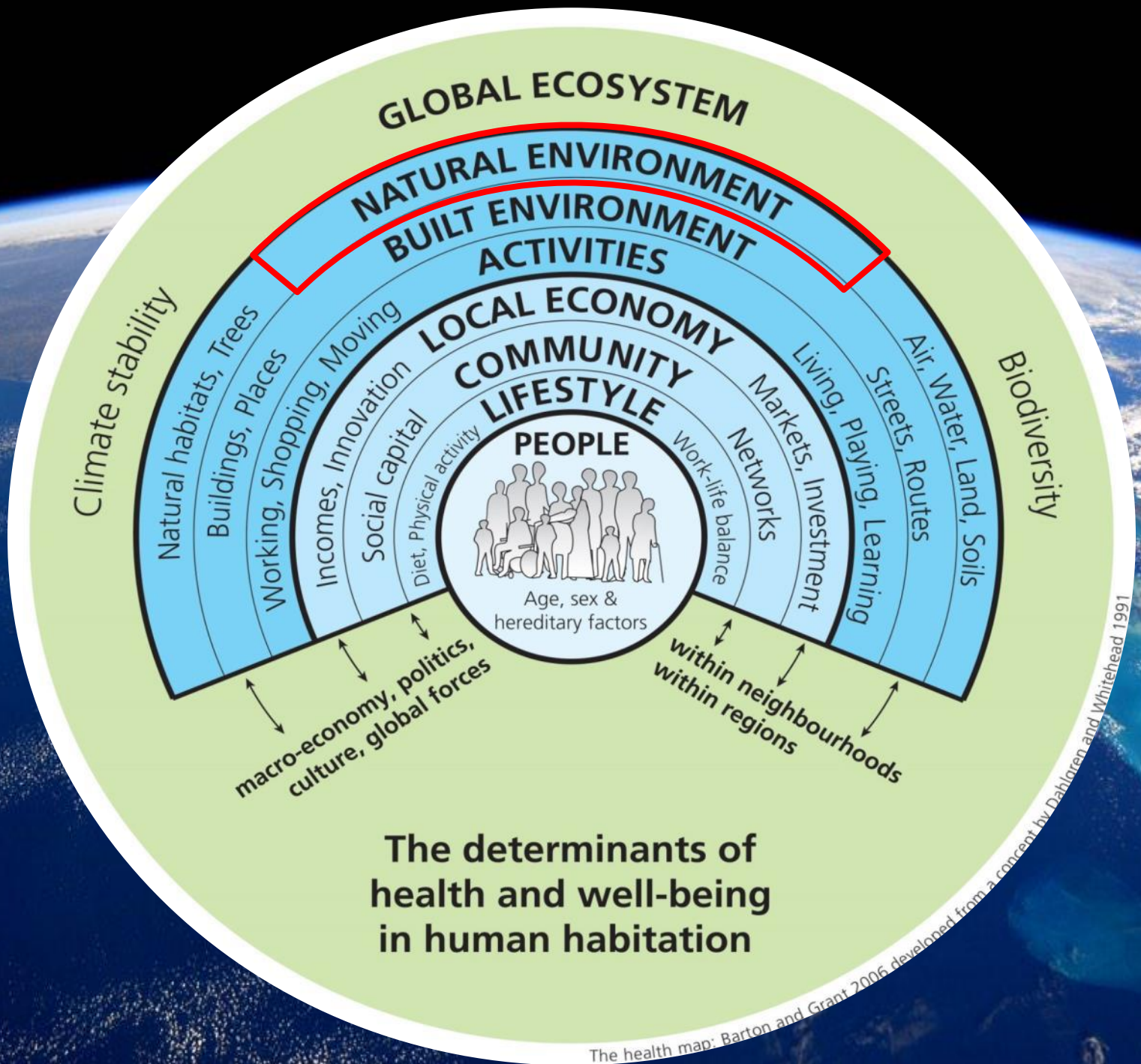
1980s  
Mandala of Health



1990s  
Butterfly Model

2000s  
Public Health Ecology



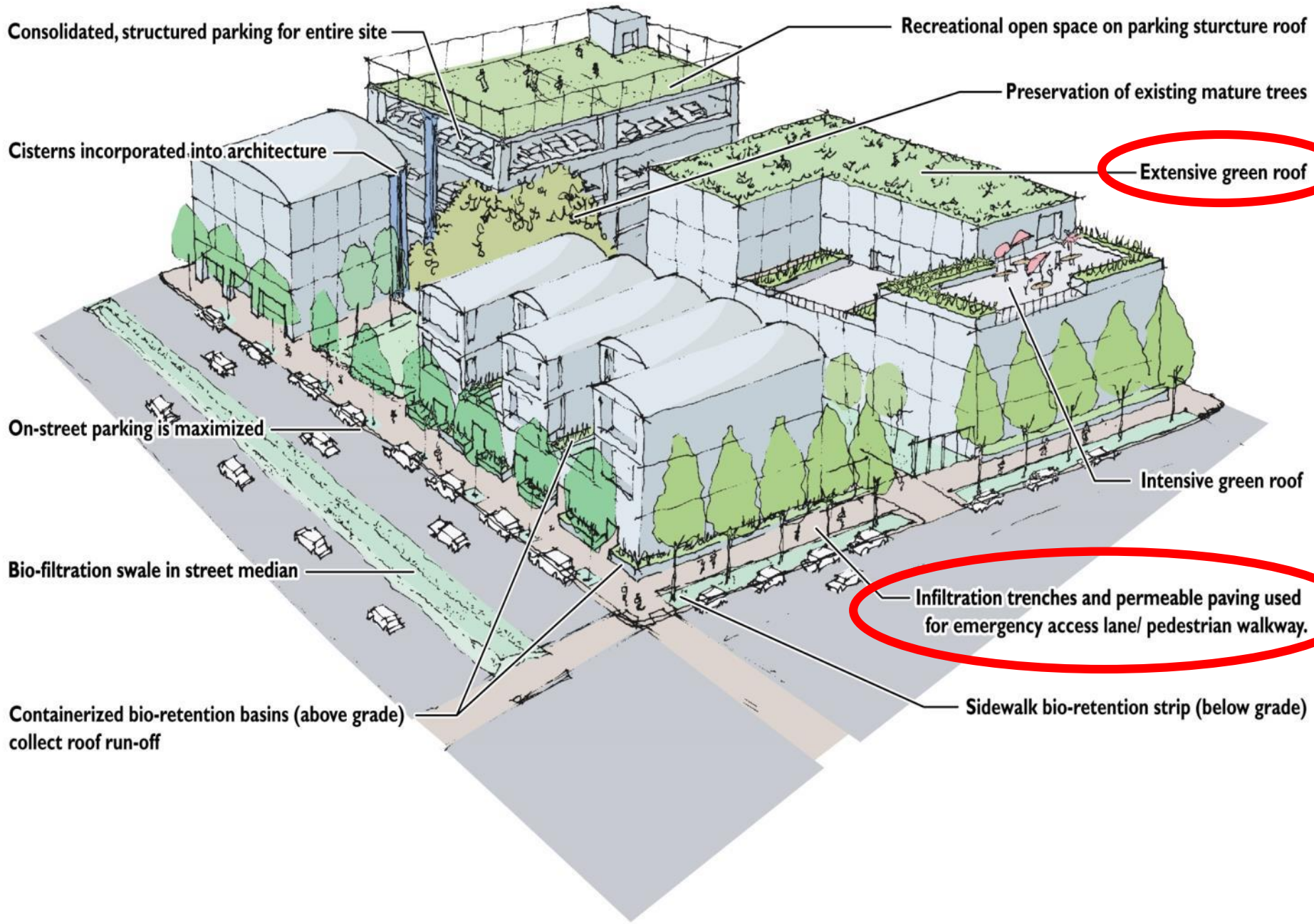


The health map: Barton and Grant 2006 developed from a concept by Dahlgren and Whitehead 1991

- Water
- Air
- Food







Consolidated, structured parking for entire site

Recreational open space on parking structure roof

Cisterns incorporated into architecture

Preservation of existing mature trees

Extensive green roof

On-street parking is maximized

Intensive green roof

Bio-filtration swale in street median

Infiltration trenches and permeable paving used for emergency access lane/ pedestrian walkway.

Containerized bio-retention basins (above grade) collect roof run-off

Sidewalk bio-retention strip (below grade)

- Water
- Air
- Food
- Physical Activity



24  
HOUR

FITNESS

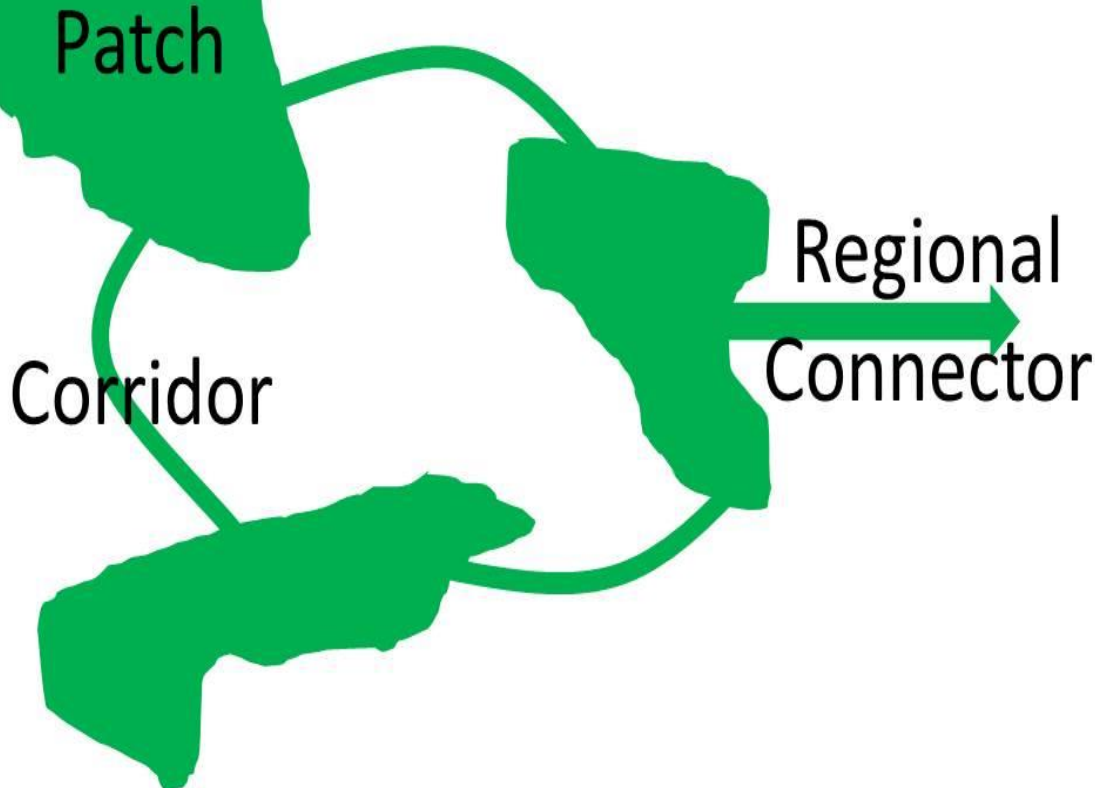
POINT LO...  
HANDICAP...  
TO UPPER...  
LOCATED...  
24 HOUR

Take a walk and use this checklist to rate your neighborhood's walkability.

# How walkable is your community?

Location of walk \_\_\_\_\_

Rating Scale:



Safe Routes to Parks:  
Improving Access to Parks through Walkability



National Recreation and Park Association

- Water
- Air
- Food
- Physical Activity
- Social Capital



- Water
- Air
- Food
- Physical Activity
- Social Capital
- Mental Health





# Healthy Communities

When it comes to health, where you live matters:  
Neighborhoods can create opportunities for—or barriers  
to—health. In fact, zip code is a better predictor of health  
than genetic code.



# Public Health in Land Use Planning & Community Design

"In its broadest sense, environmental health comprises those aspects of human health, disease, and injury that are determined or influenced by factors in the environment. This includes not only the study of the direct pathological effects of various chemical, physical, and biological agents, but also the effects on health of the broad physical and social environment, which includes housing, urban development, land use and transportation, industry, and agriculture."

—*Healthy People 2010*

## Understanding the Issues

Land use, community design, and transportation planning have an impact on the health of communities in relation to diseases and injuries, as well as quality of life and well being. Environmental conditions such as air quality, ground and surface water contamination, and the re-use of brownfields (used lands where expansion or redevelopment is complicated by real or perceived environmental contamination) affect disadvantaged populations more severely, particularly given the current separation between land use planning and public health. Local public health agencies (LPHAs) can ensure that community health is emphasized throughout the planning process by becoming involved during the early stages of land use planning. In order to ensure a better quality of life and the sustainability of our communities, it is important for planners and public health officials to collaborate on healthy solutions to the environmental health problems that exist where we live, work, and play. Planning and design decisions have a tremendous impact on a wide range of public health issues, including:

Because land use choices influence the underlying determinants of community and environmental health, such as air quality and traffic safety, developing coherent strategies that integrate health considerations is critical.

### Air Quality

Asthma and other respiratory diseases are caused, in part, by poor air quality. Poor air quality is tied to pollution emitted from automobiles and other motor vehicles. In the United States, automobiles account for over 49 percent of all nitrogen oxide (NOx) emissions, which contribute to smog and lead to serious health matters.<sup>1</sup> Between 1980 and 1994, asthma rates rose by 75 percent.<sup>2</sup> People in sprawling communities drive three to four times more than those who live in efficient, well-planned areas, thus increasing vehicle emissions that contribute to poor air quality.

### Water Quality

*The National Water Quality Inventory: 1996 Report to Congress* identified runoff from development as one of the leading sources of water quality impairment, accounting for 46 percent of assessed estuary impairment. In the United States, wetlands are being destroyed at a rate of approximately 300,000 acres per year, much of it for new development.<sup>3</sup> Wastewater also poses a

serious threat to water quality. In Florida, it is estimated that onsite sewage treatment and disposal systems discharge 450 million gallons per day of partially treated, non-disinfected wastewater, which can lead to contamination of ground water supplies.<sup>4</sup>

### Traffic Safety

According to the National Personal Transportation Survey, walking accounts for only five percent of trips taken and less than one percent of miles traveled, due in part to a lack of appropriate and safe options for pedestrians. Approximately 4,882 pedestrians were killed by vehicles and 78,000 injured in 2001.<sup>5</sup> A Texas study found that for three out of five disabled and elderly people, there are no sidewalks between their homes and the closest bus stop.<sup>4</sup> Over 55 percent of all pedestrian deaths occur in neighborhoods, which are often designed with a bias toward cars, with no sidewalks or otherwise inadequate pedestrian accommodations.<sup>6</sup>

### Physical Activity

Community design often presents barriers to physical activity, contributing to increased risk for obesity, heart disease, diabetes, and other chronic diseases. Barriers include, but are not limited to, the absence of sidewalks, heavy traffic, and high levels of crime. Today, nearly one in four Americans is obese, and at least 50 percent are overweight.<sup>7</sup> As access to recreational infrastructure may be limited, people with disabilities often have less opportunity to engage in physical activity. People are more likely to be physically active if they can incorporate activity into their daily routine. A 1996 report from the U.S. Surgeon General determined that each year, as many as 200,000 deaths are attributable to a sedentary lifestyle.

### Mental Health

According to the Human Environment-Research Lab, studies have shown that exposure to greenspace helps to foster an increased sense of community, and also lessens the effects of chronic mental fatigue, which reduces violence and aggressive behavior. A Cornell University study found that children whose families relocated to areas with more greenspace experienced an increase in cognitive functioning. Lack of accessibility, such as absence of ramps and narrow doorways, can contribute to an increase in isolation for the elderly and people with disabilities. Increased commuting time has been linked with physical and stress-related health problems. It is estimated that for each additional 10 minutes of driving time, there is a 10 percent decline in civic involvement.<sup>8,9</sup>



Prepared by the American Planning Association and the National Association of County and City Health Officials with funding from the Centers for Disease Control and Prevention.

# Public Health Terms for Planners & Planning Terms for Public Health Professionals



## Fact Sheet



NATIONAL ASSOCIATION OF COUNTY & CITY HEALTH OFFICIALS

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**P**lanners and public health officials are forging new partnerships to achieve shared goals in their jurisdictions. These goals include understanding the impact of neighborhood design on residents' ability to be physically active, the impacts of development on natural systems such as aquifer recharge and groundwater contamination, and the effects of transportation facilities and automobile use on air quality and personal mobility.

To succeed in such partnerships, each profession will have a significant language barrier to overcome. While the meaning of various acronyms, terms, and concepts used in the respective fields requires little or no explanation when one is speaking to or writing for an audience of fellow public health professionals or fellow planners, the case is quite different when one addresses professionals from outside the field. In some cases, each field may use the same term, but define it in a much different way.

This fact sheet is provided to planners, public health professionals, and all others who are interested in the benefits of interdisciplinary collaboration between the two fields. It can be used as a starting point for discussions between public health professionals and planners who are launching a collaborative effort or as a quick reference guide for the many public health professionals and planners that are already collaborating to improve the health of residents by addressing the effects of planning and community design.



### PUBLIC HEALTH TERMS

#### *Access*

In public health terms, access means the ability to obtain needed health care services.

#### *ATSDR*

The Agency for Toxic Substances and Disease Registry is part of the Department of Health and Human Services. The agency is mandated by the federal superfund law to assess health risks from hazardous waste sites on the National Priority List. ATSDR determines if additional health studies are needed at these sites, provides health advisories, and publishes toxicological profiles on chemicals found at hazardous waste sites. ATSDR also maintains exposure registries of people exposed to certain substances.

#### *BRFSS*

The Behavioral Risk Factor Surveillance System (BRFSS) is a telephone questionnaire initially developed by the CDC in the early 1980s to collect state-level data to monitor state-level prevalence of the major behavioral risks among adults associated with premature morbidity and mortality, such as cigarette smoking and inactivity.

#### *Behavior/Healthy Behavior*

Behavior is the combination of knowledge, practices and attitudes that together contribute to motivate actions we take regarding our own health. Healthy behavior may promote and preserve good health.

#### *CDC*

The Centers for Disease Control and Prevention (CDC) is part of the Department of Health and Human



# Working with Elected Officials to Promote Healthy Land Use Planning & Community Design

*Once health officials and planners begin collaborating, they must work to influence policies and regulations in order to promote sustainable growth patterns that will contribute to the health and overall quality of life of their communities.*

## Background

The impact of the built environment on the public's health continues to be explored by leading national organizations. However, it is at the local level, where communities are planned, that it is imperative for practitioners to take a proactive approach to addressing this link. Forging relationships between health officials and planners is the first step. Once these groups are educated about these issues and have begun to work together to create healthier communities, it is crucial to engage local elected officials in order to garner the support needed to institute policy changes that will influence the design and health of the community. Cultivating support from elected officials, including the board of health, planning commission, zoning board, mayor, or county commissioners will serve to greatly improve your efforts to institute overarching changes in your community. While many changes can be initiated through a planning and health agency partnership, there are many policies and recommendations that need to be more formally adopted and will be more successful with the support of elected officials.

*Cultivating support from elected officials, including the board of health, planning commission, zoning board, mayor, or county commissioners will serve to greatly improve your efforts to institute overarching changes in your community.*

*"No matter how much the local official may want to shape projects into a more livable community project, if they don't have a basis and authority in code, they can't do it. It only leaves them the option of negotiation with the developer, but the developer doesn't have to do it."*

## Who are the Partners?

While each municipality is different, there are categories of elected officials that are common to many areas. Clearly, a mayor would be an elected official whom it would be beneficial to have on your side. But there are many others who are in positions to help advocate for the public health cause, as well as to actually institute change. City councils, local planning commissions, local zoning boards of appeals (ZBA), county commissioners, and local boards of health are elected (or appointed by elected officials) and can wield substantial power over city rules and regulations. Local ZBAs hear appeals from decisions of zoning enforcement officers and building inspectors, interpret zoning laws and review applications for variances and other types of permits. Many Planning Commissions have as their main

role the adoption of a Comprehensive Plan and may serve many additional advisory functions, such as drafting zoning provisions. They provide an impartial perspective on land use issues while keeping in mind the long-range needs of the community as set forth by the Comprehensive Plan. Most local boards of health are affiliated with the health agency in their jurisdiction. Local boards of health are often responsible for recommending health policy; proposing, adopting, and enforcing public health regulations; and recommending health department budgets and priorities.<sup>2</sup> These and other elected officials can serve to work toward building healthier communities when fully informed and included in the collaborative activities early on.

*"We need to move towards providing information up front and guidance as far as public health issues to be considered in the process, so that we don't just have the opportunity to come in at the tail end when changes are most likely not going to occur."*

## Developing Strategies

The connection between land use and public health can be a gray area for those unfamiliar with the implications of the built environment on personal and community health status. Therefore, public health officials and planners can take preventive measures to dispel any ambiguity by outlining a clear health message that highlights the concerns relative to planning issues. The message should reflect community needs and interests that address specific policy issues but also reflect other issues that local public health agencies (LPHAs) and planning agencies feel are important. Planners and public health practitioners should work together to establish agreed upon goals and objectives that are easily defined. These are statements that describe what you hope to accomplish and how you plan to do so. Having predetermined goals and objectives will allow others to better understand why your message is important and how it will be accomplished.

*As with so much of this work, it's about relationships.*

Partnerships of planners and health officials (the Partners) must first lay the groundwork by educating local elected officials and community members about health and the built environment in terms of the role of primary prevention. They must make it clear that land use and transportation planning are legitimate areas of concern for the public health sector, and vice versa.





## Planning and Health Resource Guide for Designing and Building Healthy Neighborhoods



CS241355A

National Center for Environmental Health  
Division of Emergency and Environmental Health Services



Questions?

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