

THE URBAN ENVIRONMENT AND HEALTH



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Air Resources Board



California Environmental Protection Agency

Presentation Overview

- **Background**

- Elements of urban environment
 - Definition, examples
- Obesity and overweight
 - Relationship to environment

- **Focus: Portland
Neighborhood Environment
and Health Study**

- Links community design and obesity



Background

Elements of the Built Environment

- **Urban design - arrangement of physical elements**
 - appearance and city design
- **Land use - function of space**
 - residential, commercial, office, industrial
- **Transportation**
 - roads, sidewalks, bike paths, railroad tracks, bridges
 - traffic levels, bus frequencies



Background

Contrasting Examples of the Built Environment

Urban Sprawl

Spreading of a city at fringe of an urban area

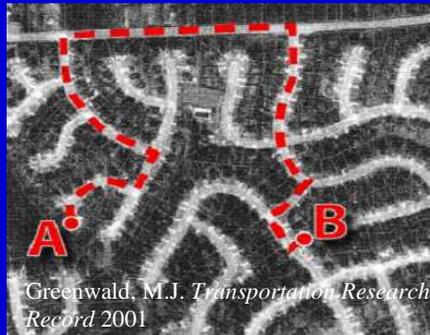
Uses open space

Single use zoning

Car-dependent

Increases pollution

Decreased activity levels



Smart Growth

Concentrates growth in city centers

Preserves open space

Compact mixed land use

Transit-oriented, walkable

Reduces greenhouse gases

Promotes healthy activity



Background

Obesity and Overweight

- **Definition**
 - Derived from Body Mass Index (BMI)
- **2/3 of adults are overweight/obese**
- **Increased risk for disease and death**
 - High blood pressure, stroke, certain cancers, diabetes, heart disease
- **Behavior and environment influence the obesity epidemic**
 - Physical activity reduces health risks (e.g., results from Women's Health Initiative)



Study Description and Methods

Portland Neighborhood Environment and Health Study

- **Study area within urban growth boundary**
- **1200 residents ages 50-75 enrolled in study**
 - lived at current address an average of 8.5 years
- **Weight, height, blood pressure measured annually**
- **Participants surveyed about physical activity, transportation, dietary habits**
- **Each residence location assessed for walkability**



Li F, et al. Built environment, adiposity, and physical activity in adults aged 50-75. *Am J Prev Med.* 2008;35(1):38-46.

Li F, et al. Built environment and 1-year change in weight and waist circumference in middle-aged and older adults: Portland Neighborhood Environment and Health Study. *Am J Epidemiol.* 2009;169(4):401-8.

Li F, et al. Built environment and changes in blood pressure in middle aged and older adults. *Prev Med.* 2009;48(3):237-41.

Results

Portland Neighborhood Environment and Health Study

- **25% lower obesity/overweight prevalence for each 10% increase in land use mix**
- **Residents in highly walkable neighborhoods lost an average of 1.2 kg (3 lbs) in one year**
 - 1.7 kg (4 lbs) overall increase in weight in all other residents
- **Residents in highly walkable neighborhoods had small decreases in blood pressure over one year**
 - Increases in blood pressure in other residents



Conclusions

- **Built environment changes can improve public health**
- **SB 375, Steinberg, 2008**
 - Smart Growth to reduce greenhouse gases and urban sprawl
 - Potential health benefits from climate change mitigation strategies

