THE ROCKY MOUNTAIN LAND USE INSTITUTE

CONCURRENT SESSION

Wearing Two Hats:
The Urban Planner as a Public Health Agent

1:30 p.m.—2:40 p.m.
Friday, April 22, 2005
Sturm College of Law

Moderator: **Carol Maclennan**
Environmental Health Policy Coordinator
Tri-County Health
Englewood, Colorado

Panelists: **Andrew Dannenberg, MD**
Associate Director for Science
Division of Emergency and Environmental Health Services
Centers for Disease Control and Prevention
Atlanta, Georgia

Wendy Collins Perdue
Professor
Georgetown University Law Center
Washington, DC

So What's A Planner to Do?
A Local Health Department's View

Rocky Mountain Land Use Institute
14th Annual Land Use Conference
April 22, 2005

Carol Maclennan
Tri-County Health Department
Colorado

Take the Lead…

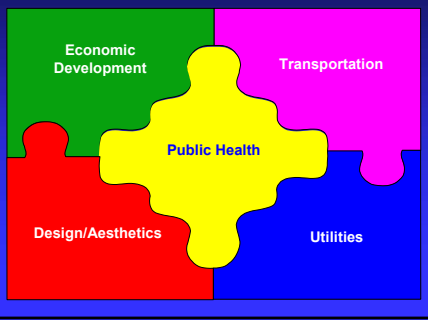
- Remember - planning decisions are public health decisions
- Engage your local health department in planning activities
- Identify key local issue(s)
- Guide your health department along the Planning learning curve!

PLANNING DECISIONS ARE PUBLIC HEALTH DECISIONS

Land Use Program Goal

Routinely incorporate sound public health principles into planning and development activities

Conceptual Model for Land Use Decisions



Promote Land Use Decisions that…

- Protect Against Environmental Hazards
- Prevent Epidemics and Spread of Disease
- Prevent Illness and Injury
- Promote Healthy Behaviors

Take Your Local Health Professional to Lunch …..

Invite Health Department Involvement

- Early Participation in
  - Master Plans
  - Codes
  - Case Reviews
- Seek "Ought Tos" as well as "Have Tos"
- Expect New Issues with Evolving Health Risks

West Nile Virus and Stormwater Facilities

- Health Recommendations:
  - Low impact development best management practices
  - Mosquito control plan

Chronic Diseases Related to Physical Inactivity

Health Recommendation:
Design active living communities

Identify Key Local Issue(s) for Action

Checklist

NACCHO NATIONAL ASSOCIATION OF COUNTY & CITY HEALTH OFFICIALS

Public Health in Land Use Planning & Community Design

NACCHO and the Tri-County Health Department in Colorado developed this checklist to assist local public health agencies (LPHAs) in their review of applications for new development or redevelopment plans in their communities. The checklist provides a method to ensure long term protection of public health and consistency in comments submitted for development plans, and broadens the health issues commented on by LPHAs during the planning process. It can also be used to identify potential health impacts and provide a screening process for improving the quality of decision-making. The checklist addresses not only those issues that LPHAs have regulatory authority over, but also the many public health issues that may arise during development and require policy change or other interventions. LPHAs can also incorporate issues that are specific to their jurisdictions. LPHAs should share the checklist with their local planning departments, elected officials, and the public, both to increase awareness of public health issues associated with land use planning and community design, and to encourage appropriate referral of applications to LPHAs for review and comment.

Water Quality

- ☐ What is the source of water for the project?
  A public system or individual well(s)?
  - ☐ If public, does the agency have any regulatory responsibility for quality assurance?
  - ☐ If private, are wellhead protection procedures proposed? Are the well(s) completed in an area of the aquifer that is free from identified or potential sources of contamination?
  - ☐ In rural areas where gas or oil exploration is

groundwater? (e.g., AST/USTs; chemicals, including agricultural chemicals such as pesticides and herbicides; asbestos)

For more information, visit:

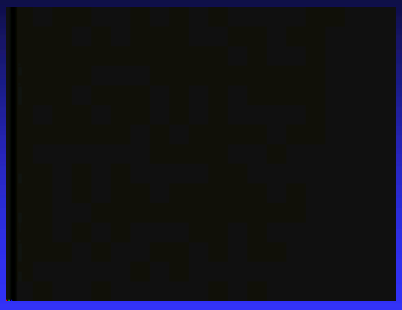
www.epa.gov/water/yearofcleanwater/docs/growthwater.pdf
http://ohioline.osu.edu/ws-fact/0001.html
www.ire.ubc.ca/ecoresearch/publica3.html
www.fhwa.dot.gov/environment/wtrshd96.htm

Help Your Health Department
Along the Planning Learning Curve!

Teach Effective Intervention

- Timing
- Methods
  - Conditions, stipulations
  - Negotiated voluntary actions
  - Specific language
  - Local land use authority as untapped tool for public health

Take Action !



PLANNING
and
PUBLIC HEALTH …

Together we can build healthy communities.

Land Use Planning and Its Impact on Public Health

Andrew L. Dannenberg, MD, MPH
National Center for Environmental Health
Centers for Disease Control and Prevention
acd7@cdc.gov

Rocky Mountain Land Use Institute
Denver, April 22, 2005

What is health?

- *"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"*
  - World Health Organization

- Physical health
- Mental health
- Well-being
- Livability

Community Design and Health

Related to land use

- Obesity, physical activity, CVD
- Water quantity and quality

Related to automobile dependency

- Air pollution and asthma
- Climate change contribution
- ↑ Car crashes
- ↑ Pedestrian injuries

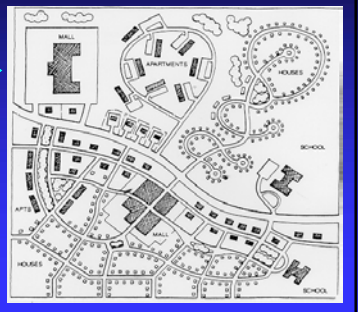
Related to social

- Mental health impact
- ↓ Social capital

Walkable Community Designs: Connectivity and Physical Activity

Suburban Development →

Traditional Neighborhood →



Drawing by Duany Plater Zyberk, in ITE Journal 1989:59:17-18

Development Patterns

Smart Growth America

Physical Activity

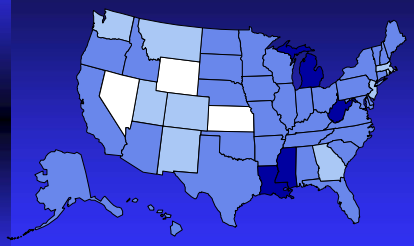
A sedentary lifestyle increases the risk of

- overall mortality (2 to 3-fold)
- cardiovascular disease (3 to 5-fold)
- some types of cancer, including colon and breast cancer

The effect of low physical fitness is comparable to that of hypertension, high cholesterol, diabetes, and even smoking.

Obesity Trends* Among U.S. Adults
BRFSS, 1991

(*BMI ≥30, or ~ 30 lbs overweight for 5' 4" woman)

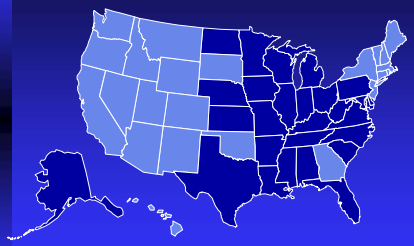


No Data | <10% | 10%–14% | 15%–19%

Source: Behavioral Risk Factor Surveillance System, CDC

Obesity Trends* Among U.S. Adults
BRFSS, 1995

(*BMI ≥30, or ~ 30 lbs overweight for 5' 4" woman)

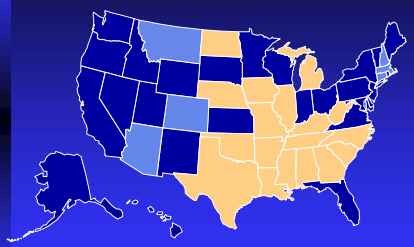


No Data | <10% | 10%–14% | 15%–19%

Source: Behavioral Risk Factor Surveillance System, CDC

Obesity Trends* Among U.S. Adults
BRFSS, 1999

(*BMI ≥30, or ~ 30 lbs overweight for 5' 4" woman)

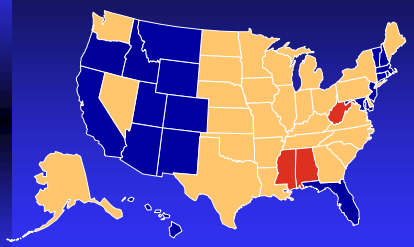


No Data | <10% | 10%–14% | 15%–19% | ≥20%

Source: Behavioral Risk Factor Surveillance System, CDC

Obesity Trends* Among U.S. Adults
BRFSS, 2002

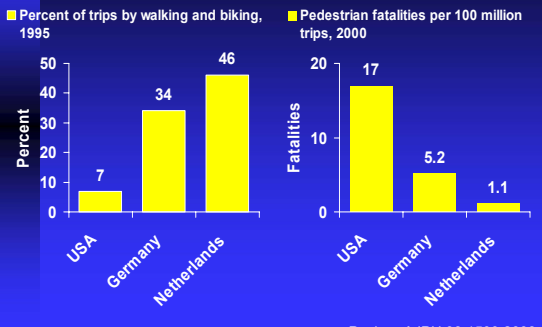
(*BMI ≥30, or ~ 30 lbs overweight for 5' 4" woman)



No Data | <10% | 10%–14% | 15%–19% | 20%–24% | ≥25%

Source: Behavioral Risk Factor Surveillance System, CDC

Walking and Bicycling: International Comparisons



Pucher, AJPH 93:1509,2003

Children Walking to School

- Parental reported barriers to walking/biking to school: 55% distance, 40% traffic danger

Water Quality

- Increased numbers of roads and parking lots lead to increased non-point source water pollution and contamination of water supplies (road runoff of oil/gas, metals, nutrients, organic waste, etc) with possible impact on human health
- Increased erosion and stream siltation causes environmental damage and may affect water treatment plants

Asthma and Air Pollution

- Natural experiment during 1996 Summer Olympic games in Atlanta
- Peak morning traffic decreased 23% and peak ozone levels decreased 28%
- Asthma-related emergency room visits by children decreased 42%
- Children's exposure to [illegible]

Deaths and Injuries to Motor Vehicle Occupants and Pedestrians

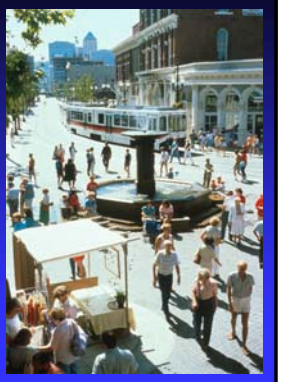
- Leading cause of deaths among persons 1-34 years old
- Annual U.S. toll from motor vehicle crashes:
  - 42,000 deaths
  - 3 million nonfatal injuries
  - $230 billion in costs

Mental Health Issues that may Relate to Community Design

- Depression
  - Relieved by physical activity and social interaction
- Stress
  - Aggravated by long commutes
- Attention Deficit-Hyperactivity Disorder
  - ? Related to limited opportunities for outdoor play
  - Greenspace may improve function in ADHD
- Violent Behavior – Impulse Control

Social Capital

- Defined as social networking, civic engagement, trust and reciprocity
- Decreased by long commutes



Community Design and Income Inequality

Definition of Health Impact Assessment

- Collection of procedures and tools by which projects, policies, and programs can be evaluated based on their potential effects on the health of a population

A Vision of Health Impact Assessment

- Community planners and zoning boards will request information on potential health consequences of projects and policies as part of their decision-making process
- Local health officers will have a tool to facilitate their involvement in community planning and land use decisions that impact health

Steps in Conducting a Health Impact Assessment

- Screening
  - Identify projects or policies for which an HIA would be useful
- Scoping
  - Identify which health impacts should be included
- Risk assessment
  - Identify how many and which people may be affected
  - Assess how they may be affected
- Reporting of results to decision-makers
  - Create report suitable in length and depth for audience
- Evaluation of impact of HIA on actual decision process

Scoping: Health Impacts to Consider in an HIA

- Physical activity, obesity, cardiovascular disease
- Air quality, asthma, other respiratory diseases
- Water quality, waterborne diseases
- Food quality, foodborne diseases, nutrition
- Motor vehicle, pedestrian and other injuries
- Accessibility for persons with disabilities
- Noise
- Mental health
- Social capital, community severance
- Access to jobs, stores, schools, recreation
- Social equity, environmental justice

Voluntary vs. Regulatory Approach to Using an HIA

- Voluntary (a tool used by a health officer to inform a planning commission)
  - Simpler, less expensive, less litigious
  - Less likely to be used if not required
  - More politically acceptable
- Regulatory (modeled on a required environmental impact statement)
  - More complex, more expensive, more litigious
  - More likely to be used if required
  - More politically acceptable

Relationship of HIA to Environmental Impact Assessment

- HIA components could logically fit within an EIA process
- HIA incorporated into EIA is necessarily regulatory
- Extending an EIA to include an HIA likely to encounter resistance from developers who see it as an additional barrier

Community Involvement in Conducting an HIA

- Increases community buy-in to project
- Helps identify social issues as well as health issues
- Commonly used in HIAs in Europe
- May add substantially to time and resources needed to conduct HIA

HIA Level of Complexity

- Qualitative – describe direction but not magnitude of predicted results
  - Easy to predict; hard to use in cost/benefit models
  - Example: Build a sidewalk and people will walk more
- Quantitative – describe direction and magnitude of predicted results
  - Difficult to obtain data; useful for cost/benefit models
  - Hypothetical example: Build a sidewalk and 300 people who live within 200 yards of location will

The Atlanta BeltLine

- Proposed 22-mile urban light rail loop
- Accompanied by a continuous multi-use trail
- Connects existing parks and 40+ neighborhoods
- Opens 2500+ acres for mixed-use redevelopment
- To be built on existing abandoned railroad

Public Health Benefits of BeltLine

Opportunity for Recreational Physical Activity

- BeltLine trails will offer an attractive setting for walking, bicycling, and other recreational physical activity
- Increased availability of trails is recommended by CDC to promote health
- Existing Silver Comet, Stone Mountain, Chastain Park trails are very popular

Exercise Easily Incorporated into Daily Commute

- Walking to and from BeltLine stations could readily fulfill the U.S. Surgeon General's recommendation of 30 minutes

Obesity Reduction

- Physical activity helps prevent obesity
- Obesity and physical inactivity are associated with increased risk of overall mortality, heart disease, diabetes, hypertension, and some cancers

Public Health Benefits (continued)

Cleaner Air

- BeltLine could reduce use of automobiles whose emissions are major contributors to ground level ozone in Atlanta
- Ozone is linked with increased asthma attacks and heart disease mortality
- Atlanta exceeded EPA's air quality standard for ozone 51 times in 2002-2003

Fewer Traffic Injuries

- Driving less reduces each individual's risk of injury on the highways
- Nationally, motor vehicle crashes are the leading cause of death among persons 1 - 34 years old

Brownfield Redevelopment

- Urban redevelopment of underutilized land can reduce sprawl and preserve greenspace
- Redevelopment promotes health by offering economically and socially thriving communities that are walkable

Community design and land use choices can either promote or harm human health

www.cdc.gov/healthyplaces
www.epa.gov/smartgrowth

Land Use Planner as Public Health Agent: Creating Communities Conducive to Health

Professor Wendy C. Perdue
Georgetown University Law Center

Historical Connections 19th Century

- Inadequate water and sewer systems
- Proximity of housing to noxious uses
- Crowded inadequate tenement housing

Responses

- Public infrastructure for sewer and water
- Building codes
- Zoning that separates uses
- Deconcentration

Current Public Health Issues Connected to the Built Environment

- Chronic diseases (e.g. heart disease, diabetes) → sedentary lifestyle, nutrition
- Injuries → road and transportation facilities design
- Crime → design of buildings, streetscape and mix of uses
- Respiratory diseases → air pollution
- Cancers and other diseases from environmental toxins

Creating Communities Conducive to Health

- Zoning and subdivision regulations
- Building codes
- Housing policies
- Transportation
- Public facilities

The Connection Between Physical Activity and the Built Environment

- Positive correlation between "sprawl" and obesity, hypertension, and BMI
- Inverse correlation between "sprawl" and minutes of leisure walking
- 20% of Americans say they would commute by bike or foot if better facilities available
- More ped./bike trips by residents of "traditional" communities than residents of "suburban" communities
- More ped./bike trips in transit oriented communities than in auto-oriented communities

Small Changes Make a Big Difference

Walking 1 mile ≈ 100 calories

1 pound = 3500 calories

Walking 1 mile a day for a year ≈ 10 pounds

Active living and land use patterns → people walk more when there are destinations within walking distance.

- jobs
- shops
- restaurants
- recreation
- transit

Features that May Increase Walking and Biking

- Pedestrian and bike facilities --- (well designed paths & sidewalks; bike accessible public transportation, showers at work)
- Street Grid
- Mixed use, higher density --- something to walk to close by
- Transit-oriented development --- people who take transit more likely to walk as part of their trip
- Recreation nearby
- De-emphasize auto: smaller parking

Land Use and Zoning Tools that Foster Ped./Bike Use

- zoning that encourages mixed-use and transit-oriented development
- planned-unit developments or cluster zoning
- revise parking standards to make design and location less auto focused
- form-based zoning
- Incentives
  - density bonus
  - expedited review
  - tax or economic incentives

Twinbrook Commons, Rockville, MD
mixed use, transit oriented development

Site Plan Tools that Foster Ped./Bike Use

- streetscape and pedestrian amenity requirements
- street grids and alleys
- pedestrian impact statement
- "build – to" lines
- maximum rather than minimum set backs

Building forms that are pedestrian friendly

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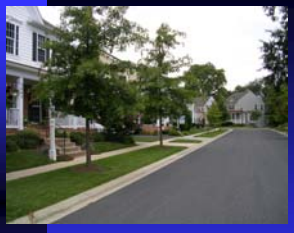


This

Not this

Designing stairs for health

Built Environment and crime reduction

- "eyes on the street"
- mixed use
- activate the public space
- lighting

Building Codes

- Building codes assure safe buildings and reduce injuries
- BUT, if too restrictive can discourage rehab

Land Use and Nutrition

- Correlation between presence of supermarket and consumption of fruits and vegetables
- Some communities underserved
  - 31 % of whites but only 8% of African Americans live in census tract with at least one supermarket

Where do residents get their groceries?

Full service grocery stores

Review zoning limits
- where are grocery stores permitted?
- excessive parking requirements?

Economic incentives
- loan guarantees
- include grocery store in econ. dev. projects

Other Sources of Healthy Food

- Farmer's markets
- Community gardens

Controlling fast food restaurants

- special exceptions/ conditional use
- overlay zones
  - need
  - locations near schools
  - excessive concentrations

Affordable housing and health

- Crowding
- Unsafe or unsanitary conditions
- Longer commutes
- Fewer resources for other necessities
- Concentrations of poverty
- Homelessness

Inclusionary Zoning

Montgomery County, MD

- 12.5% MPDUs required in subdivisions or buildings of more than 20 units
- 1973-2002: 11,000 units distributed throughout the county

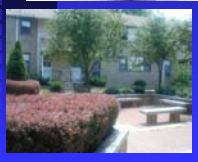
125 other communities have similar programs

Accessory apartments



Government owned housing





Other housing programs

"Green tape" affordable housing projects

"Live near your work" incentive programs

Location sensitive mortgages

Transportation Systems and Health

- Sedentary life style
- Air pollution
- Injuries

Transit

Reduce vehicle miles traveled

People usually walk (or bike) at least one end of trip


Design for pedestrians and bikes

from: www.pedbikeimages.org

This

Not this

Road design and traffic calming

"Accidents" by design

from: www.pedbikeimages.org

Public facilities

- Schools
- Parks and recreation facilities
- Government offices and buildings

Schools and Childhood Obesity

Percentage of children who walk to school:
- 1969: 50%
- today: less than 10%

Percentage of obese children
- 1971: 4%
- today: 15%

from: www.pedbikeimages.org

School design and location

Parks and Recreation

- People with access to recreational facilities twice as likely to get recommended levels of exercise
- People without access to public recreation facilities more likely to be overweight
- Parks reduce stress and improve psychological well being

Public Parks and Recreation Facilities

- Proximity for all residents
- Facilities for all ages
- Community use of schools & co-location in schools
- Long term planning and funding

Privately Provided Facilities

- Require recreation facilities in larger residential developments
- Require pedestrian access plan to existing facilities
- Economic incentives to encourage worksite facilities

Government Offices and Buildings

Smart growth locations

Pedestrian friendly designs

On-site bike lockers, showers, and fitness facilities

"Public health is what we, as a society, do collectively to assure the conditions for people to be health."

National Institute of Medicine

Checklist

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  - ☐ If private, are wellhead protection procedures proposed? Are the well(s) completed in an area of the aquifer that is free from identified or potential sources of contamination?
  - ☐ In rural areas where gas or oil exploration is occurring, are domestic wells planned with adequate setbacks from gas or oil wells?
- ☐ Does the project adequately address stormwater?
  - ☐ What is the drainage pattern on the site?
  - ☐ Are there indications of drainage problems, such as erosion, steep topography, wetlands, boggy areas, etc.?
  - ☐ Are there adjacent or nearby bodies of water (lakes, reservoirs, ditches, streams, etc.) that receive drainage from the site?
  - ☐ If an erosion control plan has been provided, are effective erosion control methods proposed during construction? Post-construction?
  - ☐ Does the plan include effective project-specific or regional stormwater quality measures? Both engineered and non-engineered?
  - ☐ Does the proposed use warrant specific best management or pollution prevention practices? (e.g., proper use of pesticides on golf courses)
  - ☐ Does the project include unnecessarily large expanses of paved areas?
- ☐ Is the property in a floodplain or a groundwater (aquifer) recharge area?
- ☐ Does the proposed use have the potential to release hazardous products or wastes into the surface or groundwater? (e.g., AST/USTs; chemicals, including agricultural chemicals such as pesticides and herbicides; asbestos)

For more information, visit:

www.epa.gov/water/yearofcleanwater/docs/growthwater.pdf
http://ohioline.osu.edu/ws-fact/0003.html
www.ire.ubc.ca/ecoresearch/publica3.html
www.fhwa.dot.gov/environment/wtrshd96.htm
www.cdc.gov/healthyplaces/about.htm

Wastewater

- ☐ Is the proposed wastewater treatment system adequate and effective?

  Centralized service
  - ☐ If new central service is proposed, does the proposed facility have an approved utility plan?
  - ☐ If new central service is not proposed, is the proposed project within the service area of an existing municipal utility or wastewater treatment district, based on its approved utility plan?
  - ☐ Does the existing or proposed service provider have the capacity to serve the development in compliance with regulatory requirements?
  - ☐ Is the proposed system fiscally sound?

  Individual sewage disposal systems (ISDS)
  - ☐ What type of systems do the soils warrant?
  - ☐ Are there site features or areas that should be avoided as ISDS locations? What are appropriate setbacks?
  - ☐ Should certain site uses be prohibited from discharging into the ISDS? Are provisions in place to segregate and collect these discharges?

For more information, visit:

www.asu.edu/caed/proceedings01/HOOVER/hoover.htm

Public Health in Land Use Planning & Community Design

Water Quantity

- ☐ Is there a sustainable water supply for the proposed use?
- ☐ Has the permitting agency (e.g., State Engineer's Office) provided written confirmation that the applicant owns sufficient water rights for the proposed development?
- ☐ Does the landscaping plan include appropriate water conservation measures?
- ☐ Are there opportunities for recycling or reuse of water and wastewater generated by the project?

For more information, visit:

www.epa.gov/ost/stormwater/usw_a.pdf
www.epa.gov/ordntrnt/ORD/WebPubs/runoff.pdf
www.epa.gov/owow/nps/lidnatl.pdf
www.epa.gov/livability/pdf/growthwater.pdf

Air Quality

- ☐ From an air quality perspective, is the proposed use compatible with adjacent uses?
- ☐ Will the proposed use emit air pollutants? Does it require an emissions permit?
- ☐ Are fugitive dust emissions a potential problem? During construction? Post-construction? What mitigation measures should be taken?
- ☐ Will the project be served by paved roads? If not, is paving recommended?
- ☐ Does the proposed use generate odors? If the project will emit air pollutants or odors, what measures should be employed to eliminate or mitigate the emissions?
- ☐ As the project develops, will there be adequate transportation infrastructure in place to absorb the volume of traffic generated by the project without degrading air quality?
- ☐ Is the project designed to reduce vehicle emissions? E.g. grid layout or non-circuitous street system, internal and external connectivity, mixed uses
- ☐ Is the project designed to offer and encourage the use of travel choices in addition to the automobile? E.g., Transit-friendly design, bike/pedestrian trails, etc.
- ☐ Is the project in close proximity to cell towers, power lines or other uses that emit potentially harmful electromagnetic radiation?

For more information, visit:

www.epa.gov/otaq/transp/trancont/r01001.pdf
www.fhwa.dot.gov/environment/air_abs.htm

Opportunities for Physical Fitness

- ☐ Are open spaces and trails included to provide regular opportunity for physical activit ies such as walking and biking?
- ☐ Are communities built with mixed-use commercial and residential purposes, and with sidewalks so that people can walk to movies, restaurants, and so on?
- ☐ Are schools built within communities so that young people can walk to school?
- ☐ Are sidewalks wide enough for mulitiple uses (e.g., bikes and walkers)?
- ☐ Is lighting placed along trails and sidewalks to increase the comfort level of those using them?
- ☐ Is there park space and equipment for children to play with?

For more information, visit:

www.surgeongeneral.gov/topics/obesity/
www.sprawlwatch.org/health.pdf
www.nga.org/common/issueBriefDetailPrint/1,1434,2473,00.html
www.vtpi.org/walkability.pdf

Transportation and Injury Prevention

- ☐ If the proposed use involves significant truck traffic, does the site plan provide adequate room for truck turnarounds and safe truck access and egress, relative to neighboring developments?
- ☐ Does the proposed project include safe routes to school with a minimum of street crossings and high visibility for children walking to school?
- ☐ Does the proposed plan include pedestrian signals and mid-street islands on busy streets, and presence of bicycle lanes and trails?
- ☐ Does the project include traffic quieting road designs in both subdivisions and shopping districts?
- ☐ Does the project provide adequate neighborhood access to public transportation?
- ☐ Does the proposed project include ramps, depressed curbs or periodic breaks in curbs that act as ramps for people with disabilities?
- ☐ Does the proposed project include voice/audio or visual clues provided at crosswalks and transit stops?
- ☐ Does the project comply with ADA requirements for design of curb ramps, cross slopes and detectible warnings for new construction or retrofit projects?

For more information, visit:

www.transact.org/Reports/driven/
www-cta.ornl.gov/npts/1995/doc/NPTS_Booklet.pdf
www.aaafoundation.org/resources/index.cfm?button=agdrtext
www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSf2001/2001pedestrian.pdf

Noise

- ☐ Is the proposed project compatible with neighboring uses from a noise perspective?
- ☐ Is the proposed project subject to nuisance noises from nearby uses such as airports, high volume roadways, industrial uses?
- ☐ Is the proposed project likely to generate noises that will create a nuisance to neighboring uses?
- ☐ Are there engineered or non-engineered measures that can be employed to mitigate nuisance noises, such as setbacks, sound walls, vegetative barriers, operational practices, and so on?

For more information, visit:

www.culturechange.org/issue19/vehicle_noise.htm
www.noiseways.org/

Natural and Manmade Hazards

- ☐ Is the site in a flood or landslide prone area?
- ☐ Is the proposed use appropriate for the site, given the potential hazard(s)?
- ☐ Does the proposed use present the potential for releases or spills of toxic materials? (E.g., above or underground storage tanks, drum storage, pool chemicals, etc.)
- ☐ What measures (e.g., engineering controls, design features or buffering) should be employed to eliminate or mitigate the hazard(s)?

Solid and Hazardous Waste Disposal

- ☐ Is the geology and hydrology of the site suitable for the proposed waste handling or disposal activity?
- ☐ Is the proposed waste handling or disposal activity compatible with adjacent existing or zoned uses?
- ☐ What design, operational or pollution prevention practices should be employed to reduce the likelihood of releases or to mitigate potential impacts from the proposed waste handling or disposal activity?
- ☐ Are plans in place to prevent release of hazardous materials into the environment in the event of an on-site fire?

For more information, visit:

www.plannersweb.com/sprawl/solutions_regional.html
www.epa.gov/compliance/resources/publications/ej/reducing_risk_com_vol1.pdf

Past Site Uses

- ☐ Is there historic evidence of solid or hazardous waste disposal or releases on or adjacent to the site? If so, is there potential for exposure or risk due to contamination or explosive gases?
- ☐ What additional information, monitoring, or mitigation measures of these sites are necessary?
- ☐ Are new industrial facilities planned? Have the potential impacts on health been assessed?

For more information, visit:

www.sustainable.doe.gov/landuse/brownf.shtml
www.brownfield.org/Action/Landuse/BAP%20land.pdf

Bulk Storage Facilities (e.g., chemicals, fertilizers, etc.)

- ☐ What design, operational or pollution prevention practices should be employed to reduce the likelihood of releases or to mitigate potential impacts in the event of a release?
- ☐ Are adequate secondary containment measures proposed?
- ☐ Does the facility have an adequate proposal for or an approved spill prevention control and countermeasures (SPCC) plan?
- ☐ Is the facility near vulnerable resources that may require contingency planning for protection in the event of an on-site fire?

For more information, visit:

www.epa.gov/nerlesd1/land-sci/pdf/335leb99.pdf

Zoonosis

- ☐ Is the site on or adjacent to an area that might involve the risk of zoonotic disease transmission such as West Nile virus? If so, have measures been taken to prevent spread of zoonotic diseases such as filling in pools of water or open ditches that may provide breeding grounds for mosquitos or vermin?

Checklist

NACCHO NATIONAL ASSOCIATION OF COUNTY & CITY HEALTH OFFICIALS

Public Health in Land Use Planning & Community Design

- ☐ Have abatement/vector control measures been considered? If lethal control is proposed, is the applicant aware of regulatory standards for controlled use of pesticides?

Health Equity

- ☐ Are disadvantaged populations at greater risk of exposure to environmental hazards?
- ☐ How are potential hazards distributed across the community among different population groups?
- ☐ Are affected residents involved in the planning process?
- ☐ Have they been involved in providing data about their neighborhoods?
- ☐ Does the proposed project present unsafe conditions or deter access and free mobility for the physically handicapped?
- ☐ Are there information barriers preventing people with disabilities from participating in the planning process?
- ☐ What is the overall picture of environmental hazards among all of the categories listed in the checklist, particularly for low-income communities?
- ☐ What zoning decisions under consideration would alleviate or exacerbate the potential for creating environmental exposures to contaminants?
- ☐ What health data exist for the community that indicate leading causes of mortality and morbidity? How might they be important for expected redevelopment?

For more information, visit:

www.sprawlwatch.org/health.pdf
www.ejrc.cau.edu/natsmartgrwthinit.htm

Additional Resources

www.nrdc.org/cities/smartGrowth/solve/solveinx.asp
www.biodiversityproject.org/messagekit.htm

Case Studies

www.plannersweb.com/sprawl/solutions_regional.html
www.nga.org/common/issueBriefDetailPrint/1,1434,2488,00.html

National Association of County and City Health Officials (NACCHO)
Environmental Health Program Staff
1100 17th Street, NW • 2nd Floor • Washington, DC 20036
Phone (202) 783-5550 • Fax (202) 783-1583 • www.naccho.org

SELECTED WEB SITES
COMMUNITY PLANNING FOR PUBLIC HEALTH

Active Living By Design, http://www.activelivingbydesign.org/, leadership in promoting choices for Active Living environments. Many resources.

Active Living Leadership, http://www.leadershipforactiveliving.org/, national institute to support government leaders as they create and promote active living environments. Many resources.

Active Living Research, http://www.activelivingresearch.org/, supports research to identify environmental factors and policies that influence physical activity. Up-to-date downloadable 4-page summaries of nationwide research for policy makers, planning and other professionals, the public.

Centers for Disease Control and Prevention, http://www.cdc.gov/healthyplaces/, Designing and Building Healthy Places; wide scope of resources on significant health issues related to community design. Sign up here for CDC livability listserv, addressing health and the built environment.

Centers for Disease Control and Prevention, Public Health Law Program, http://www.phppo.cdc.gov/od/phlp/, Collaborates to improve the health of the public through law. Trainings, research, publications. Sign up here for CDC's Public Health Law News listserv.

Environmental Protection Agency, http://www.epa.gov/smartgrowth/sg_network.htm, partnership of business, government and civic organizations supporting smart growth. Includes organizational links, best practices, policies.

Local Government Commission, http://www.lgc.org/, wide variety of resources and guides on planning, design, health and physical activity, environmental health, and safety issues.

National Association of County and City Health Officials, http://www.naccho.org/topics/HPDP/Land_Use_Planning.cfm , Community Design and Land Use, Land Use and Health Tool Kit, Land Use Planning Guide and Checklist.

National Center for Bicycling and Walking, http://www.bikewalk.org/WCW/, How to create communities where people walk and bicycle. Variety of resources, including Walkable Community Workshop and new Power Point, "Complete Streets".

Prevention Institute, http://www.preventioninstitute.org/builtenv.html, Systematic, comprehensive strategies that change conditions affecting community health, "The Built Environment and Health: 11 Profiles of Neighborhood Transformatio".

Walkable Communities, Inc., http://www.walkable.org/, national non-profit to promote pedestrian-friendly communities. Audits, workshops, training, publications, presentations, CDs, etc.

Land Use Planner as Public Health Agent: Creating Communities Conducive to Health

Wendy C. Perdue*

The title of this panel is Land Use Planner as Public Health Agent. It might have been subtitled "Back to the Future." Historical antecedents of modern urban planning are found in the American Sanitary Reform movement of the mid to late Nineteenth Century and the progressive housing movement of the early twentieth century. Both were deeply grounded in concerns about improving public health. Even the urban parks movement of the late nineteenth century, epitomized by the creation of Central Park in New York and similar parks around the country, was founded at least in part on a view about the health benefits of parks and open space. Frederick Law Olmstead, the designer of so many of our great urban parks believed that the sun light and fresh air offered by parks, helped to decrease "the plague and other forms of pestilence." (Peterson at 28.)

Today, the built environment of our urban centers continues to impact public health, though the primary health concerns have shifted from infectious disease to chronic disease, injuries, and crime. Heart disease, asthma, and diabetes are among the leading causes of death and premature disability in the United States. (National Center for Health Statistics, 2002) These conditions are affected by a sedentary life style, diet, and poor air quality (National Center for Chronic Disease Prevention, 2003) -- all factors that are in turn linked with the built environment. For example, with respect to sedentary life-style, there is a growing body of evidence that links physical activity with the structure of our environment and how easy or hard it is to integrate active living into daily life. (Frank *et al.*, 2003; Frumkin *et al.*, 2004; Ewing et al., 2003) Diet is also affected by logistical factors such as a lack of access to stores or farmers markets carrying healthy food options (Morland *et al.*, 2002) and an ease of access to "fast food" or less healthy food options. Outdoor air quality is linked to roads and transportation systems (Frumkin *et al.*, 2004, p. 68-78); internal air quality is linked with how buildings are built including ventilation and materials used. (Samet and Spengler, 2003; National Inst. For Occ. Safety and Health, 1991)

Injuries are also affected by the built environment. Road and sidewalk design affect automobile and pedestrian injuries. (Ohland *et al.*, 2000, p. 29; Ernst and McCann, 2002) Building design affects injuries from fires and falls. (Krieger and Higgins, 2002) Even crime is impacted by the built environment. Lighting, visibility, layout, and design can all reduce the incidence of criminal activity and there is a growing interest among architects, planners, and law enforcement in environmental design as a tool in crime prevention. (Katyal, 2002; Newman, 1972; Mair and Mair, 2003, p. 215; Carter *et al.*, 2003)

Notwithstanding the growing evidence concerning the connections between land use and public health, public health seems almost completely absent from most current land use discussions. (Perdue et al., 2003) This is vividly illustrated by the agency with which I work. The Montgomery County Park and Planning Commission is one of the oldest, largest, and most respected planning agencies in the country. It has spearheaded nationally know programs on smart growth, transferable development rights, and affordable housing. The agency has a staff of over 200 people including urban planners, architects, historians, transportation engineers, demographers, environmental scientists, and lawyers. So far as I know, there is not one person with a public health background. Our comprehensive master plans frequently include discussions of significant plant or wild life resources or the quality of the brown trout population in the streams, but include no discussion of human health.

Dr. Dannenberg's presentation will focus on the data and studies that demonstrate the connections between public health and land use. My focus is on the range of tools that are available to encourage a built environment that fosters health and healthy choices.

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* Professor of Law, Georgetown University Law Center and Vice-Chair, Montgomery County Maryland Planning Board. This paper is drawn from Perdue, *Building Healthy Cities: Legal Frameworks and Considerations* IN HANDBOOK OF URBAN HEALTH (S. Galeo & D. Vlahov eds.) to be published by Springer Publishing Co. in summer 2005.

One preliminary concern that arises is whether government has a legitimate role in shaping the environment to encourage health. First, there is no question that government has the legal authority to take actions that enhance health and welfare. Of course, even recognizing legal authority, some people worry about a "nanny state" telling people what their neighborhoods should look like.

The primary response to this is that the current unhealthy shape of our communities is the result of profound government intervention. We see this in zoning rules that in essence require auto-oriented, non-walkable communities (Knapp et al, 2001). We likewise see it in government choices concerning transportation infrastructure, and the placement and design of schools, recreation facilities, and other government building.

Creating a Built Environment Conducive to Health

Assuming one accepts the desirability of creating a built environment conducive to health and healthy behavior, there are a range of tools available to accomplish this. Broadly speaking, these tools fall into three broad categories: direct regulation of private parties, economic incentives or subsidies for private parties, and government provisions of facilities or services. These categories are not unique to urban issues, but represent three basic techniques for implementing government policies.

These three different approaches can be illustrated with a simple example. Consider, for example, the public health problem of smoking. One approach is to regulate smoking directly, by prohibiting smoking in particular places and by particular people, i.e., children. A second approach is to provide economic incentives either for individuals to encourage them not to smoke, for example, by raising the price of cigarettes through taxes, or for businesses to encourage them to ban smoking or to offer smoking cessation programs. The third approach is for government itself to provide smoking cessation programs, public information about the harms of smoking, and to ban smoking in government buildings and facilities. These legal techniques vary in their infringement upon individual autonomy and may also vary with respect to cost and effectiveness, but all three are used in connection with land use policy.

There are a number of areas in which these basic tools can be deployed to help create a built environment that is conducive to health and healthy living. Several of these areas are explored below:

1. Zoning

The standard approach to zoning is to strictly separate uses, making it less likely that there will be destinations within an easy walk of one's home or business. There is evidence suggesting that a correlation between levels of physical activity and the proximity of housing to parks, shops and other destinations. (King et al., 2003; Powell et al., 2003; Saelens et al., 2003) In addition to separating uses, development standards may require building separations, set backs and parking standards that effectively mandate "strip mall" style developments that are easily accessible to the automobile and quite un-conducive to pedestrian activity. Indeed, one study of Illinois municipal zoning codes found that most of those codes impeded rather than facilitated compact, walkable communities. (Knapp *et al.*, 2001) In response to these concerns, some cities have begun revising their zoning codes to encourage mixed-use, compact, and walkable communities (Langdon, 2003), and the American Planning Association has released a compilation of model provisions for those interested in such revisions. (Meck, 2002) Some of the techniques include: form-based zoning, planned unit developments, and requirements or incentives for transit oriented development. (Urban Land Inst., 2003) Within residential communities, zoning and subdivision regulators can require the inclusion of recreation facilities (Maryland Nat'l Capital Park & Planning Comm'n, 1992b) or encourage cluster development with a well planned pedestrian network.

In addition to encouraging physical activities, physical layout and design can either facilitate or discourage crime. Careful design can decrease dark and hidden spaces, increase "eyes on the street" (Jacobs, 1961, pp. 35-42), and impact social norms and a sense of community, all of which can reduce the incidence of at least some crimes. (Katyal, 2002, p. 1097) Zoning law requirements concerning set backs and parking, along with limitations on uses, may make it easier or harder to develop buildings and spaces that discourage crime. Moreover, some zoning or building requirements can discourage redevelopment of older deteriorating neighborhoods and hence

contribute to conditions that encourage crime in those neighborhoods. (Carter *et al.*, 2003, p. 1442-43)

Finally, zoning and land use laws may play a role in diet. (Pothukuchi and Kaufman, 2000) In some urban areas, residents have limited access to fruits, vegetables and healthy food alternatives (Sloane, 2004), and this lack of access may correlate with less healthy eating patterns. (Morland *et al.*, 2002; Reidpath *et al.*, 2002) Zoning or other regulatory obstacles including the requirement to provide vast amounts of parking even in relatively urban settings can make it difficult to develop supermarkets in some areas. More flexible land use rules may also facilitate farmers' markets or community gardens. (Schukoske, 1999) On the flip side, zoning and land use laws affect the location and concentration of fast food restaurants. (Ashe *et al.*, 2003) The locations and concentrations of these restaurants can be controlled through special exception or conditional use requirements that include a required showing of need or prohibit concentrations of particular uses.

2. Building Codes and Other Regulation of Structures

One of the innovations of the early 20th century progressive movement was the effort to improve safety and sanitation in tenement housing. The landmark 1901 Tenement House Act for the City of New York laid the foundation for subsequent housing and building codes intended to assure that buildings are safe and sanitary. Further impetus came with the Federal Housing Act of 1954, which required local governments to develop housing and building codes in order to qualify for federal housing and urban renewal programs.

The majority of building codes are adopted as state legislation, though local variations may be permitted, and most are based on model codes developed by private organizations of professionals such as the International Code Council and the National Fire Protection Association. These codes address structural issues along with electrical wiring, plumbing, fire safety, heating, air conditioning and ventilation. Housing codes may specify minimum living area and require that bedrooms have windows or an escape route to the outside. Building codes are nearly always framed as mandates or prohibitions, and, as a result, their effectiveness may depend on the effectiveness of enforcement. (Brown *et al.*, 2001)

These building and housing codes affect public health in several ways. Injuries are the leading cause of death in children ages 1 to 21. Smoke detectors, sprinklers, and safety requirements for electrical and gas systems can reduce fire injuries. Structural requirements can prevent building collapse. Design standards for stairs, railings and window barriers can prevent falls. Adequate ventilation may prevent build up of toxic or combustible compounds. Adequate sanitation may reduce cockroach infestations, a risk factor for asthma. (Cummins and Jackson, 2001) On the other hand, codes that are too restrictive can have unintended and undesirable consequences. For example, it can be difficult to retrofit existing buildings to achieve compliance with building codes focused on new construction. This may discourage redevelopment of existing underused buildings which may, in turn, accelerate a decline of older urban neighborhoods and encourage suburban sprawl. (McMahon, 2001b) Likewise housing code requirements that go beyond the minimum necessary to assure safety can discourage innovation that could lower housing costs or permit construction of smaller, more affordable units. (Kelly, 1996) As a result, many jurisdictions have developed "smart codes" to encourage the reuse of existing buildings. (New Jersey Dept. Com. Affairs; Maryland Dept. Housing & Comm. Develop., 2001; New Urban News, 2003)

3. Housing

The quality and availability of housing, particularly affordable housing has significant health effects. (Krieger and Higgins, 2002) A lack of affordable housing may increase homelessness along with its attendant health problems including higher rates of disease, both chronic (The Urban Institute, 1999) and communicable (Moss *et al.*, 2000), greater rates of trauma due to victimization and crime (Wenzel *et al*, 2000), and higher mortality rates than the general population. (Barrow *et al*., 1999) Likewise, overcrowding has significant health impacts. The greater proximity of people to each other may increase the ease of disease transmission as well as put strains on sanitation and garbage disposal systems. It may also increase psychological stress and the likelihood of violence. (Wallace and Wallace, 1998) Moreover, as people are forced to devote more of their income to housing, they are likely to have fewer resources available for other necessities including food and health care. (Cummins, 2001)

In addition to these concerns, government policies, including public housing policies, that tend to concentrate poverty in particular neighborhoods, may have adverse health consequences. Studies suggests that even controlling for personal characteristics such as income and education, living in a neighborhood with a high concentration of poverty is associated with a higher incidence of coronary heart disease (Diez Roux *et al.*, 2001), as well as higher levels of stress and depression. (Leventhal and Brooks-Gunn, 2003) In addition, housing projects that are poorly designed and maintained, as many were in the 1950's and 60's (Rybcznski, 1995, pp. 165-6; Jackson, 1985; Newman, 1972), and lack recreation space, may increase crime in the area and stress for the residents (Quercia and Bates, 2002) as well as decrease the likelihood that residents will walk or that their children will play outdoors.

There are a variety of techniques that jurisdiction have used to address the need for affordably housing. Many cities and counties have adopted inclusionary zoning requirements that require developments above a minimum size to include a percentage of moderately priced dwelling units. (Brown, 2001; Calavita and Grimes, 1998) Likewise, density bonuses may be offered for the inclusion of affordable units. (New Urban News, 2001) Another technique is a "green tape" program that offers expedited permit approvals for projects with affordable units. (Montgomery County Planning Bd.) Finally, zoning limitations can be loosened to make it easier to construct accessory apartments.

There are connections between housing and health that go beyond affordability. For example, the location of housing within close proximity of jobs and transit may encourage people to walk or bike. In addition to zoning changes that encourage mixed use and transit-oriented developments, some jurisdictions have adopted "live near your work programs" that provide economic incentives to encourage workers to purchase homes within a close distance of their jobs. (Maryland Dept. Housing & Comm. Devel.) Similarly there are programs in place for location-efficient mortgages. These mortgages recognize that families with lower transportation costs can afford to pay more for housing. As a result, purchasers of homes in communities with businesses, retail, amenities, and transit within walking distance will qualify for larger mortgages than would otherwise be the case. (Natural Resources Defense Council)

4. Transportation

Transportation systems are linked to health in three critical ways. First, there is the safety of the systems themselves. Roadways, sidewalks and bike paths can be designed and built to reduce the likelihood of injuries. Second, the transportation system can either encourage or discourage active forms of transportation such as walking or biking. Finally, heavy reliance on automobiles has a direct and significant impact on air quality, and air quality is in turn closely linked to a number of health issues including asthma, cancer, respiratory, and cardiovascular diseases. (Frumkin *et al*., 2004; Friedman et al., 2001; Kaiser et al., 2004; Peters and Pope, 2002) One of the most significant government transportation programs was the creation of the interstate highway system. The Federal-Aid Highway Act of 1956 provided for over 40,000 miles of highways, 90% of which were to be funded by the federal government. Although only 15% of the highway miles were to be built in urban areas, the impact of these highways on cities has been dramatic. The highways were designed by road engineers, not urban planners, and were intended to move as many cars as possible as quickly as possible through the city. (Altshuler, 1983) As Witold Rybczynski explains: "the highways (usually elevated) wrought physical havoc in the established urban fabric, reducing the older housing stock, creating physical barriers between neighborhoods, and often cutting cities off from their waterfronts. Urban highways also ultimately accelerated central city decline by providing easy access to the suburbs from downtown." (Rybczynski, 1995, p.161)

Federal, state and local governments continue to invest heavily in roads. In the year 2000, all levels of government spent a total of $127.5 billion on roads and highways. (Federal Highway Admin., 2002) Government also invests in other modes of transportation including public transit, along with pedestrian and bike facilities, but investments in these alternative transportation modes is significantly less than on roads. (Surface Transportation Policy Project, 2000) Notwithstanding the more limited funding of non-auto transportation systems, local governments can facilitate better pedestrian and bike access through careful planning of pedestrian and bike networks. (Maryland Nat'l Capital Park & Planning Comm'n, 2003).

Cities are affected not only by what is built and where, but also by how transportation projects are built. State and local governments promulgate design standards or "road codes" that specify engineering criteria for roads such as width, curvature, turning radii, tree placements and sidewalks. These codes are generally based on a publication of the American Association of State Highway and Transportation Officials (AASHTO) called A Policy on Geometric Design of Streets and Highways. Although federal law allows AASHTO standards to be applied flexibly, many states and local governments take a more rigid approach. For example, they may require that even residential roads be quite wide, making them harder for pedestrians to cross, (Duany *et al*., 2000, pp. 64-72), and may prohibit street trees abutting the roadway thereby making walking less pleasant and possibly less likely.

Transportation demand is impacted by a variety of government requirements and incentives. Building and zoning codes may encourage auto-dependant design by requiring extensive amounts of parking. Some jurisdiction loosens these requirements, particularly for projects near transit. The federal tax code similarly encourages auto use by allowing employers to provide parking benefits of up to $195 tax free, but only $100 in comparable transit benefit. There is no federal tax benefit available to walkers or bikers. On the other hand, disincentives such as higher gas or parking taxes and HOV lanes may discourage driving of single occupancy vehicles.

Our urban transportation networks of roads, sidewalks, bike paths and transit are not built exclusively by government. Private developers may be required to build roads, sidewalks, bus shelters, or bike paths in order to accommodate the increased transportation demands generated by their projects. (Maryland Nat'l Capital Park & Planning Comm'n, 1992a) In the alternative, or where construction of new facilities is not feasible, they may be required to operate "traffic demand management" systems that encourage workers and new residents of their projects to walk, car pool, or take transit so as to not overburden the existing roads.

4. Economic Redevelopment Projects

Redevelopment projects have several potential impacts on health. First, health can be affected by whatever the redevelopment project replaces. Projects may be built on and improve sites that are dilapidated, infested with vermin, contaminated with toxic chemicals and may be crime ridden. On the other hand, one of the criticisms of "slum clearance" and urban renewal projects of the 1960's was that they demolished and did not replace large numbers of low income housing units and thereby exacerbated shortages of affordable housing. (Frieden and Sagalyn, 1989, p. 29) A second potential health effect stems from what is included in the projects. Redevelopment projects can include elements that themselves contribute to the health of surrounding residents. For example, in areas that are underserved by grocery stores or other sources of nutritious food, governments can require or provide incentives to assure that any redevelopment project in that area includes a grocery store. (Burton, 2004; Pennsylvania Dept. of Agriculture, 2004) A third potential health effect of redevelopment projects stems from how the projects are built. Projects can be auto dependant, cut off from the street, and discourage pedestrian activity, or they can include pedestrian amenities and be designed to encourage walking. Finally, governmental entities may own underutilized land in strategic locations that is appropriate for redevelopment. (Transit Cooperative Research Program, 2002) For example, WMATA, the transit agency in the Washington, D.C. area, owns significant amounts of land adjoining its metro stops. That agency has recently recognized that this land is not only a very valuable resource that can generate income to support transit operations, it is also an opportunity for transit oriented development projects. While in the past, its focus was primarily on using the land for parking, it has now identified the promotion of transit oriented development as an important objective in its decisions concerning the use of this land. (Urban Land Inst., 2003)

5. Government Facilities (Including Schools)

Today, government entities routinely make choices about what government facilities to build, and where and how to build them. Government decision makers, like their private counterparts, may focus on issues such as keeping down capital and operating expenses, but their decisions in this area do have health implications. First, how buildings are designed may affect levels of physical activity of the users and employees of these facilities. Careful attention to sidewalks, pedestrian amenities, the location of parking (Dallas Morning News, 2003), along with the accessibility and attractiveness of stair ways (Boutelle *et al*., 2001), may increase the likelihood that building users will walk. In order to

assure attention to pedestrian safety and access, one Maryland community requires that all large government capital projects include a "pedestrian impact statement." (Montgomery County Department of Park and Planning, 2004, Appendix F)

Second, the locations of public facilities can have important implications both on levels of physical activity and on issues such as auto dependency and air pollution. Facilities that are located on large, suburban sites with easy auto access may contribute to sprawl-style development and thereby increase auto use and attendant air pollution problems. In contrast, when facilities are located on more compact sites closer to facilities and destinations, they may contribute to walkable, lively communities. (Langdon, 2003a; McMahon, 2001a)

Schools provide a useful illustration of how choices concerning the design and location of government facilities may affect health. Obesity among children is a rising problem. (Ogden *et al*., 2002) At the same time, the number of children who walk to school has declined significantly from about 50% in 1969 to under 10% today (Ernst and McCann, 2003; Savitch, 2003), and mothers of school aged children are spending increasing amounts of time in the car chauffeuring their children. (Surface Transportation Policy Project, 2002a) While the causes of these changes in behavior are complex, at least one factor may be the size, design, and placement of schools. School acreage requirements have increased over the years, so that today, relying on state and local education department requirements, a high school may require as much as 60 acres. In addition, state funding formulas frequently favor new construction over renovations. The result of these policies is to push schools onto suburban sites that are less accessible by walking or biking. (National Trust for Historic Preservation, 2000; McMahon, 2000)

A third implication of decisions concerning government facilities relates to parks and recreation facilities. Proximity to parks and recreation facilities is another factor that correlates with higher levels of physical activity. (Huston *et al*., 2003) Parks also reduce stress and improve psychological well-being for users (Ho *et al*., 2003; Parsons *et al*., 1998; Taylor *et al.,* 1998), as well as contribute to environmental quality. In times of tight budgets, parks and recreation facilities may seem like a luxury, but they can also be understood to be part of our basic health infrastructure. Recognizing the importance of parks, a few cities have instituted programs to assure that all residents live within a short distance of a park. One of the most successful of these is in Minneapolis where 99.4% of residents live within 6 blocks of a park. (Harnik and Simm, 2004)

Fourth, government facilities not only impact the communities in which they are built and the people who use them, their construction presents opportunities for government to lead by example. (McMahon, 2001a) Changes and approaches successfully implemented by government can lay the foundation for wider acceptance by the public and by private industry. Finally, the locations of public facilities have important implications not only for health in general, but also for health equity. Public uses that present health hazards such as waste dumps, incinerators or sewage treatment facilities have historically been located in minority neighborhoods. (Gelobter, 1994, p. 852) Conversely, parks and recreation facilities may be disproportionately located in wealthier or non-minority areas. (Gelobter, 1994, p. 853)

Conclusion

For the land use planner interested in public health the most important first step is to continue to ask the question: "What will the impact of this policy be on human health. Many laws and policies which do not on their face appear to have anything to do with health, may nonetheless have health impacts. However, these impacts may go unnoticed unless those interested in urban health continue to raise the health question. Second, the planner should bring a broad vision of health impacts. There are professions such traffic engineers or fire experts who focus on particular components of health. Though this focus is very valuable, it sometimes overshadows broader concerns about health and wellbeing. Thus, traffic engineers may design streets with few auto accidents, but which are also so sterile and inhospitable that they also have few pedestrians. A public health oriented land use planner should be particularly cognizant of the epidemic of chronic diseases that are exacerbated by a sedentary life style.

A greater focus on public health does not guarantee any particular outcome with respect to policy choices. Factors other than health may be given priority. Moreover, sometimes there will be competing health and safety concerns. For example, adding sidewalks and bike paths to encourage

physical activity can increase impervious surface and contribute to unhealthy water run-off. Concentrating density may facilitate walking and reduce vehicle miles traveled and overall air pollution levels, but may increase air pollution intensity within certain areas. (Frumkin *et al.*, 2004, pp. 77-78) Rigorous building codes make buildings safer, but may also discourage reuse of existing dilapidated buildings. In some cases, careful crafting of policy can address the competing claims, as some jurisdictions have done with their road codes (North Carolina Dept. of Transportation, 2000), and building codes (Connolly, 1996). In other cases, the trade offs will be unavoidable. However, it is only after recognizing the potential health impacts that we can then make the conscious though sometimes difficult choices that good policy decisions require.

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