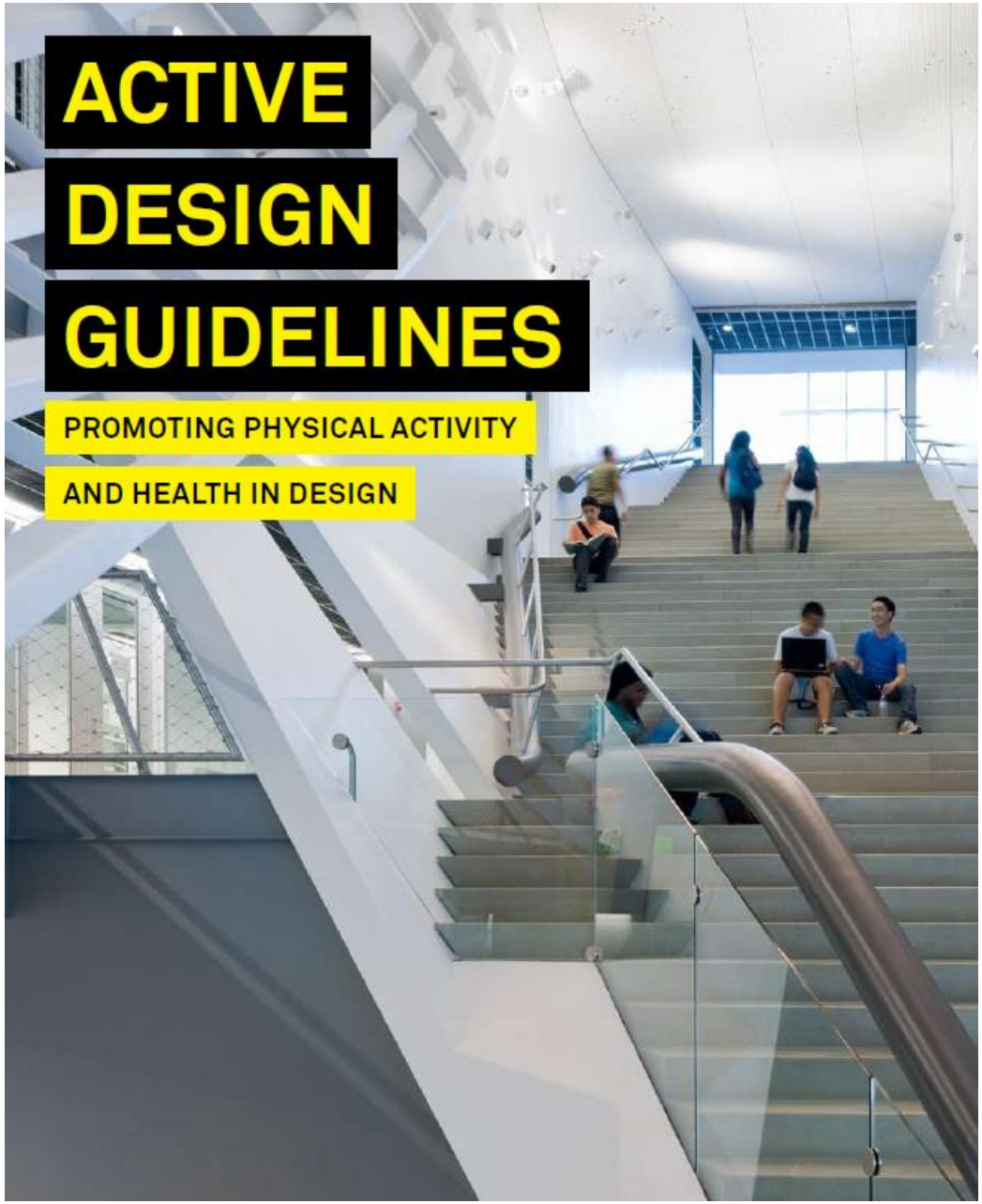
Comprehensive Policy and Environmental Approaches for Addressing Obesity and Non-Communicable Diseases



Karen K. Lee, MD, MHSc, FRCPC
Adjunct Professor,
Schools of Public Health,
University of Alberta (World Health Organization Collaborating Center),
and University of Toronto;
Also Senior Advisor,
Built Environment and Healthy Housing,
NYC Health Dept

ACTIVE
DESIGN

THE 19th CENTURY:

Infectious Diseases

19th Century codes, planning and infrastructure as weapons in the battle against contagious disease

These strategies were built into the city fabric, and they were effective

THE 21st CENTURY:

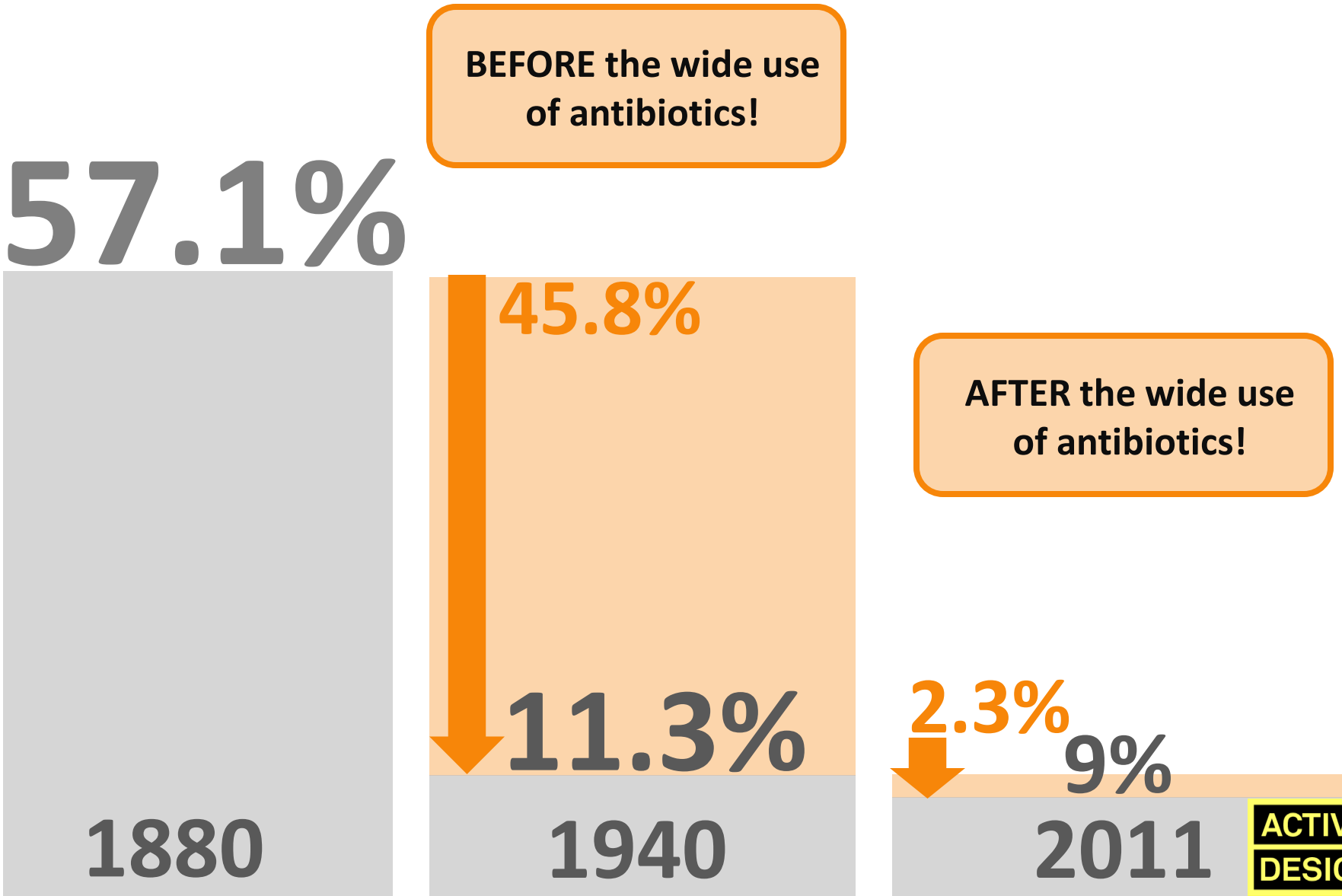
Chronic Diseases,
many of which are
"Diseases of Energy"

The emerging design solutions for health parallel sustainable design solutions

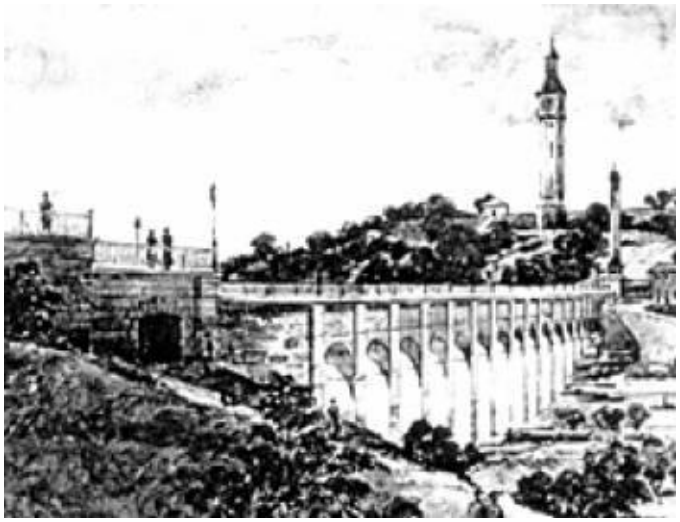
Effective designs will have to be an invisible, pervasive, and inevitable part of life

ACTIVE DESIGN

Health Successes: Infectious Diseases



Successes through policy and environmental changes



1842 New York's **water system** established – an aqueduct brings fresh water from Westchester.

1857 NYC creates **Central Park**, hailed as "ventilation for the working man's lungs", continuing construction through the height of the Civil War

1881 Dept. of Street-sweeping created, which eventually becomes the **Department of Sanitation**

1901 **New York State Tenement House Act** banned the construction of dark, airless tenement buildings

1904 First section of **Subway** opens, allowing population to expand into Northern Manhattan and the Bronx

1916 **Zoning Ordinance** requires stepped building setbacks to allow light and air into the streets

ACTIVE DESIGN

The epidemics of today are:

CHRONIC DISEASES

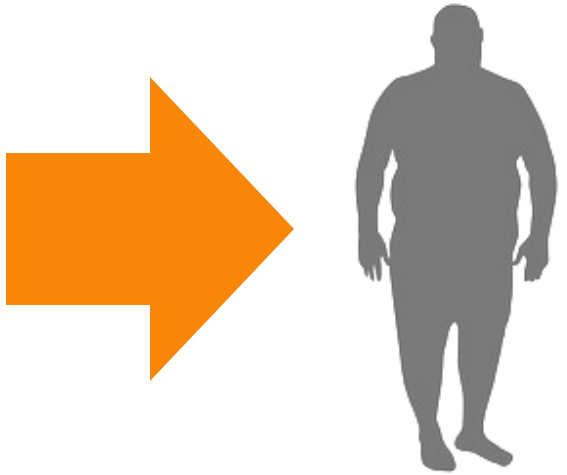
(obesity, diabetes, heart disease & strokes, cancers)

Chronic Diseases - #1 cause of death globally (36 million deaths/y).

Leading Risk Factors accounting for 80% of deaths (WHO 2011):

- Tobacco
- **Physical Inactivity**
- **Unhealthy Diets**
- Harmful Use of Alcohol

Energy in: Food



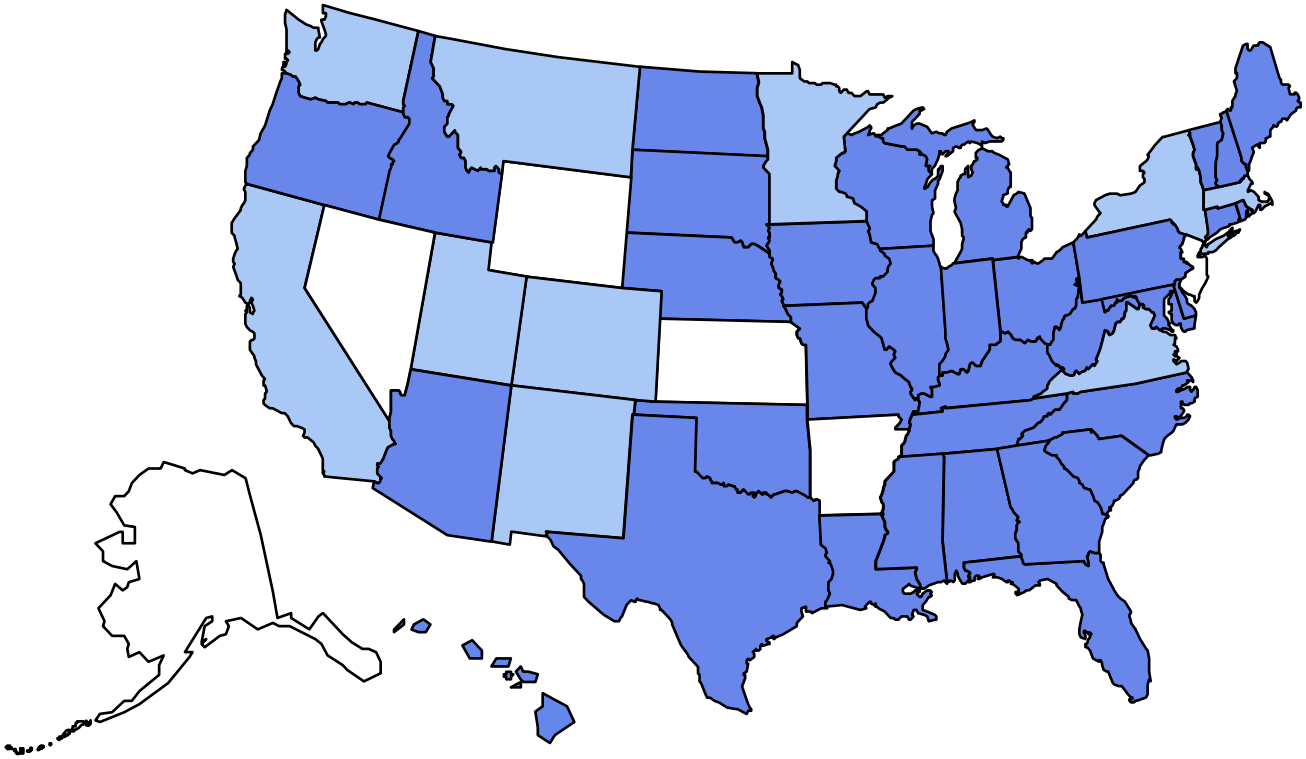
Energy out: Exercise

ACTIVE DESIGN

Obesity Trends* Among U.S. Adults

BRFSS, 1990

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” woman)



Source: U.S. Centers for Disease Control and Prevention (CDC)

ACTIVE DESIGN

Obesity Trends* Among U.S. Adults

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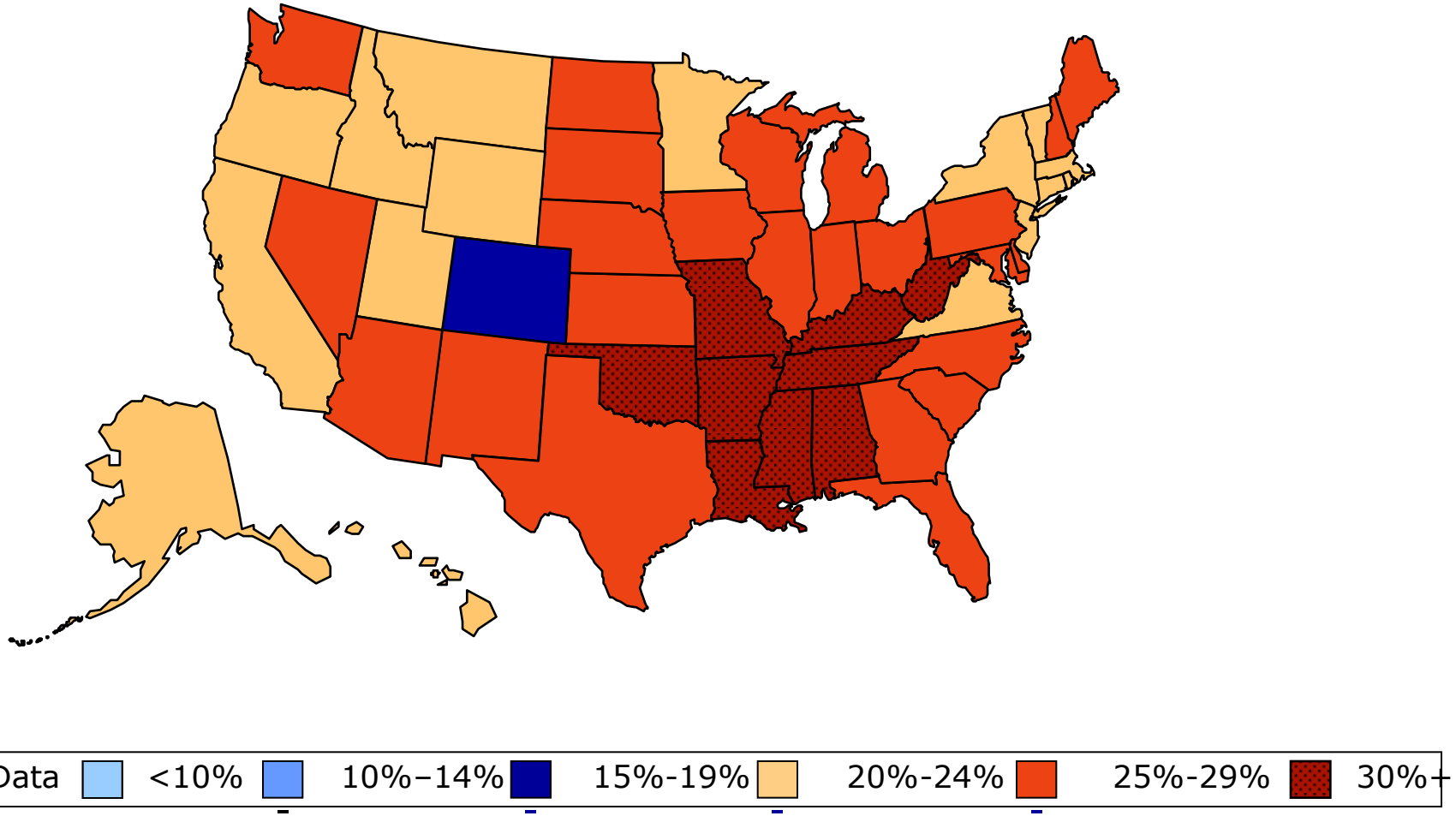
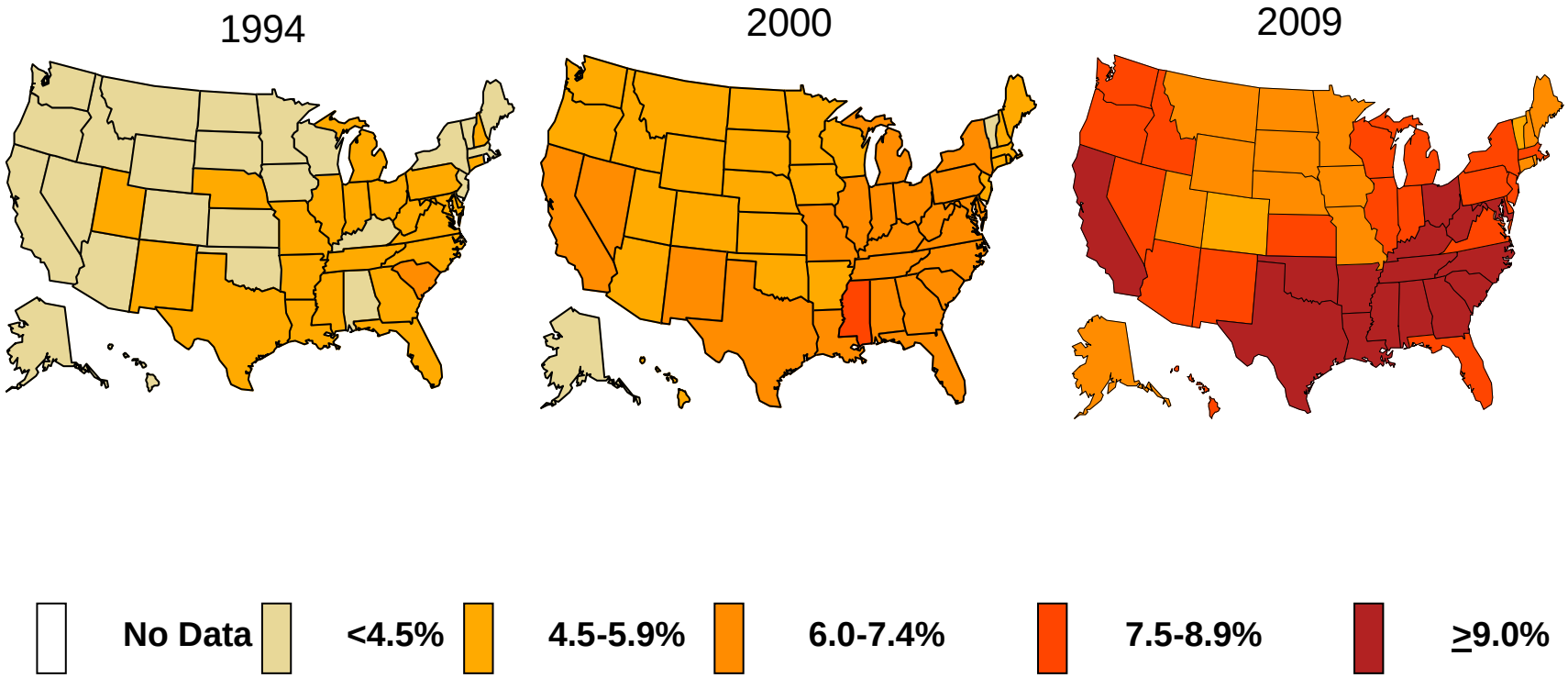


Source: U.S. Centers for Disease Control and Prevention (CDC)

ACTIVE DESIGN

Diabetes trends among U.S. adults

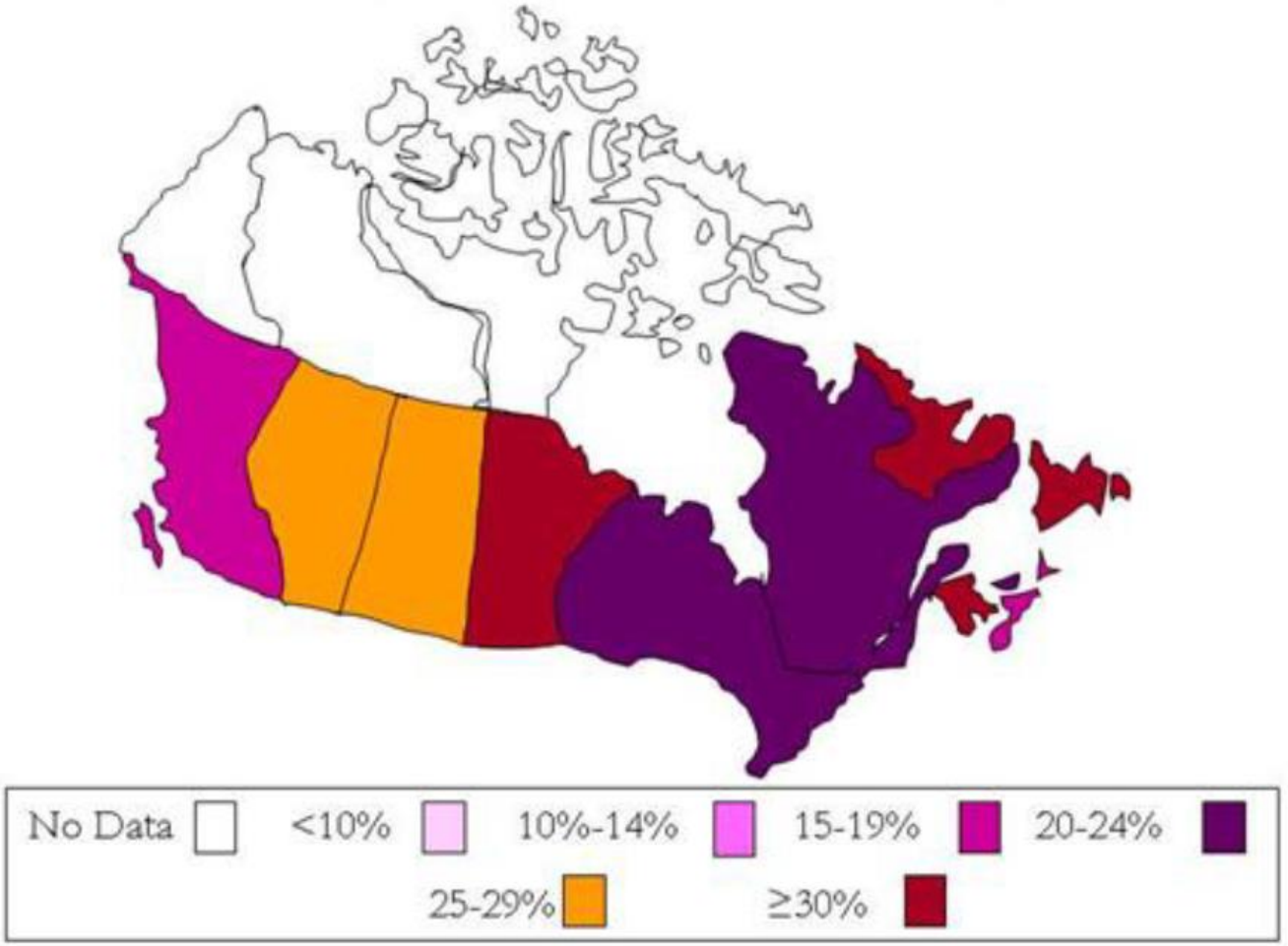


Source: CDC's Division of Diabetes Translation. National Diabetes Surveillance System available at http://www.cdc.gov/diabetes/statistics

ACTIVE DESIGN

Obesity Trends Among Canadian Adults

CCHS, 2004 (MEASURED height & weight)



Source: M Tjepkema & M Shields, Statistics Canada. June 2005

Cost to Health Care:

- **CURRENT:**
  - Canada – $4.6 Billion – estimated economic costs of obesity (2008)
  - Saskatchewan – $230-260 Million annually (2010)

Please note: these numbers have most likely increased as the National cost estimation is 5 years old and Provincial is 3!

ACTIVE DESIGN

Physical Inactivity

- 85% of Canadian Adults do not get the minimum 150 minutes of moderate-vigorous physical activity per week
- 91% of Canadian boys and 96% of Canadian girls (ages 6-19 years) do not get the 60 min of moderate-vigorous physical activity per day

- Physical Inactivity contributes to:
  - 21,000 premature deaths (Canada, 1995)

ACTIVE DESIGN

Obesity and Diabetes have increased rapidly.
Our genetics have not changed in one generation, but our environment certainly has!

Improving Physical Activity through Building, Street and Neighborhood Design

Designing to increase active transportation

Walking, Bicycling and Transit-oriented development

Designs to improve street safety and aesthetics (less crime and traffic / more greening), having sidewalks and bike paths connected to destinations, mixed land use, high population density

Median increase in physical activity 35% to 161%

Designing to increase active recreation

Enhancing access to places for physical activity, such as creating walking trails or having onsite or nearby parks, playgrounds and exercise facilities (homes & worksites)

increases leisure-time activity and weight loss

Designing to increase stair use

Point-of-Decision stair prompts

Signs placed at elevators & escalators encouraging stair use, w/ info on benefits of stair use

Median 50% increase in stair use

Design and aesthetic interventions

Music & art in stairwells

Design stairs to be more convenient and visible

Skip-stop elevators

3300% increase in stair use

ACTIVE DESIGN

Addressing Healthy vs Unhealthy Food and Beverage Access

Food Retail – Supermarkets vs Fast Food

- Supermarket availability is associated with lower rates of neighborhood obesity.
- High density of fast food restaurants is associated with increased weight and obesity in area residents.

Community Gardens

- People with a household member who participated in a community garden ate more fruits and vegetables per day.
- Garden-based nutrition education improved adolescent fruit and vegetable intake.

Access to Tap Water vs Caloric Beverages

- Big source of calories in the US diet (9% of calories) are from carbonated and non-carbonated soft drinks; Children & Adolescents are getting 10-15% of total calories from sugar-sweetened beverages and 100% fruit juice.
- Water fountain installation + education in elementary schools in deprived neighborhoods reduced risk of overweight in children.

Sources: Moreland K et al., Supermarkets, other food stores, and obesity. AJPM 2006; 30(4): pp. 333-339.
Mehta NK, Chang VW. Weight status and restaurant availability: a multi-level analysis. AJPM 2008; 34(2): pp. 127-133.
Alaimo K, Packnett E, Miles RA, Kruger DJ. Fruit and vegetable intake among urban community gardeners. J Nutr Educ Behav. 2008; 40(2): pp. 94-101. McAleese JD, Rankin LL. Garden-based nutrition education affects fruit and vegetable consumption insixth-grade adolescents.J Am Diet Assoc. 2007 Apr;107(4):662-5.
Block G. Foods contributing to energy intake in the US: data from NHANES III and NHANES 1999–2000. J Food Comp Anal. 2004;17: pp. 439–47.
Wang Y, Bleich S, Gortmaker S. Increasing caloric consumption from sugar-sweetened beverages and 100% fruit juices among US children and adolescents, 1088-2004. Pediatrics 2008; 121(6): pp.1604-1614.
Muckelbauer R et al. Promotiona and provision of drinking water in schools for overweight prevention: randomized, controlled cluster trial. Pediatrics 2009; 123(4): pp. e661-7.

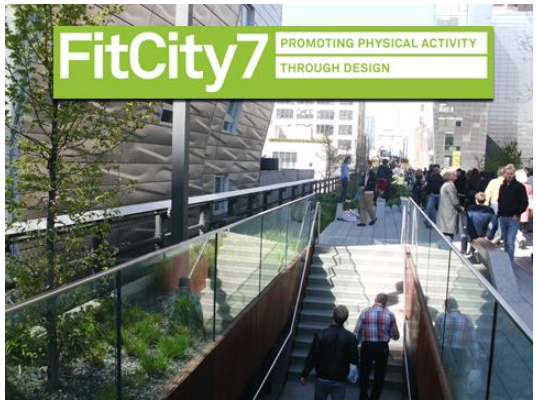
ACTIVE DESIGN

Integrating Health into Non-Health Sector Policies & Practices

- The Need for **Partnerships Across Sectors**

- **Finding Synergies and Co-Benefits**

- **Complementary Roles** of Partners
  - Health: Data on key health issues; evidence for interventions; helped organize meetings/conferences for cross-sector discussions; co-leader/partner in initiatives; health-related evaluations
  - Transportation, City Planning, Design + Construction, Buildings, Housing, Parks, School Construction, Private Sector Architects/Developers: Ideas of what's feasible in the current local context; identifying opportunities and mechanisms, including and especially synergistic efforts; co-Leadership and participation in the efforts
  - Researchers: evidence reviews and synthesis, evaluation research



- Using **Evidence-Based and Best-Practice Strategies**

- Using **Annual Conferences as Strategic Milestones**
  – E.g. Annual NYC Fit City Conferences – Fit City 8 June 24, 2013
  www.aiany.org/fitcity7

ACTIVE DESIGN

- Supported by CDC Communities Putting Prevention to Work Mentoring grant
- Partnership between NYC DOHMH, AIANY, and 14 communities
- All communities are recipients of CPPW grants

Boston MA ~ Cherokee Nation OK ~ Chicago IL ~ Cook County IL ~ Douglas County NE ~ Jefferson County AL ~ King County WA ~ Louisville KY ~ Miami-Dade County FL ~ Multnomah County OR ~ Nashville TN ~ Philadelphia PA ~ Pima County AZ ~ San Diego CA

COMMUNITIES PUTTING PREVENTION TO WORK

ACTIVE DESIGN

Cross-Sector Partnerships in U.S. Cities

Key Intergovernmental Partners in Local Communities
(n=15, incl. NYC):

- Public Health – 15
- Planning – 15
- Transportation – 14
- Education/School Construction – 12
- Parks and Recreation – 12
- Public Works – 8
- Housing Development or Management – 6
- Buildings – 3

ACTIVE DESIGN

Impacts in NYC (& U.S.)

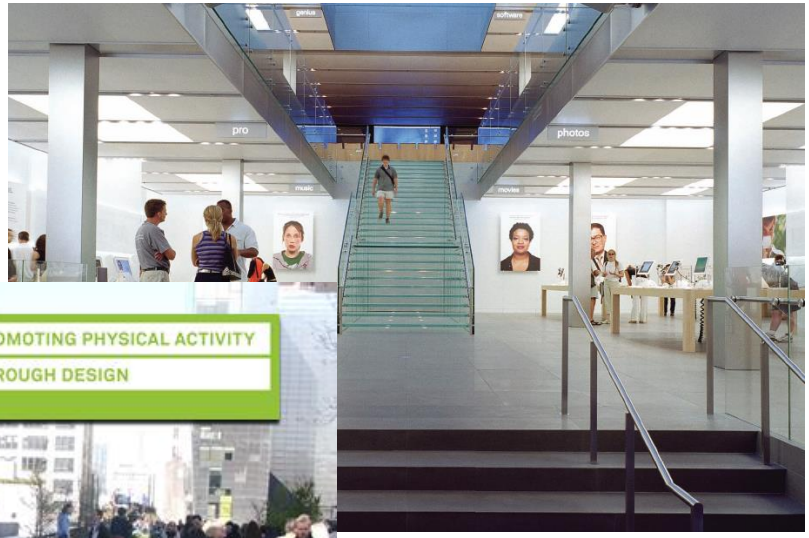
- Increased:
  - Pedestrian volumes through pedestrian plazas
  - Stair use, where stair prompts are posted
  - Commuter cycling – up 289%
  - Bus and subway ridership – up 10%
  - Places for children's play - >60 new Play Streets permitted; >180 schoolyards to playgrounds opened

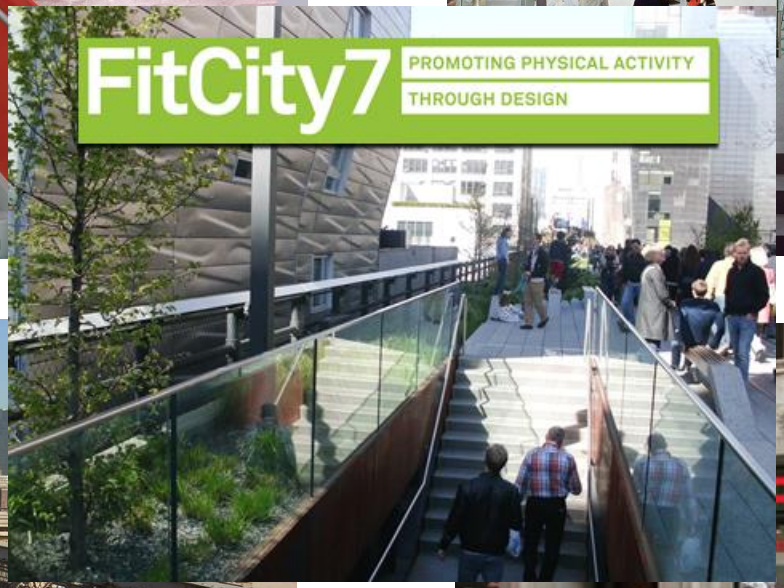
- Decreased:
  - Traffic fatalities 37%
  - Traffic volumes 1.5%
  - Car registrations 5%

- Started Reversing Childhood Obesity (also in Philadelphia & San Diego!)
- Positive Environmental and Economic Impacts

ACTIVE DESIGN

Fit City Conferences



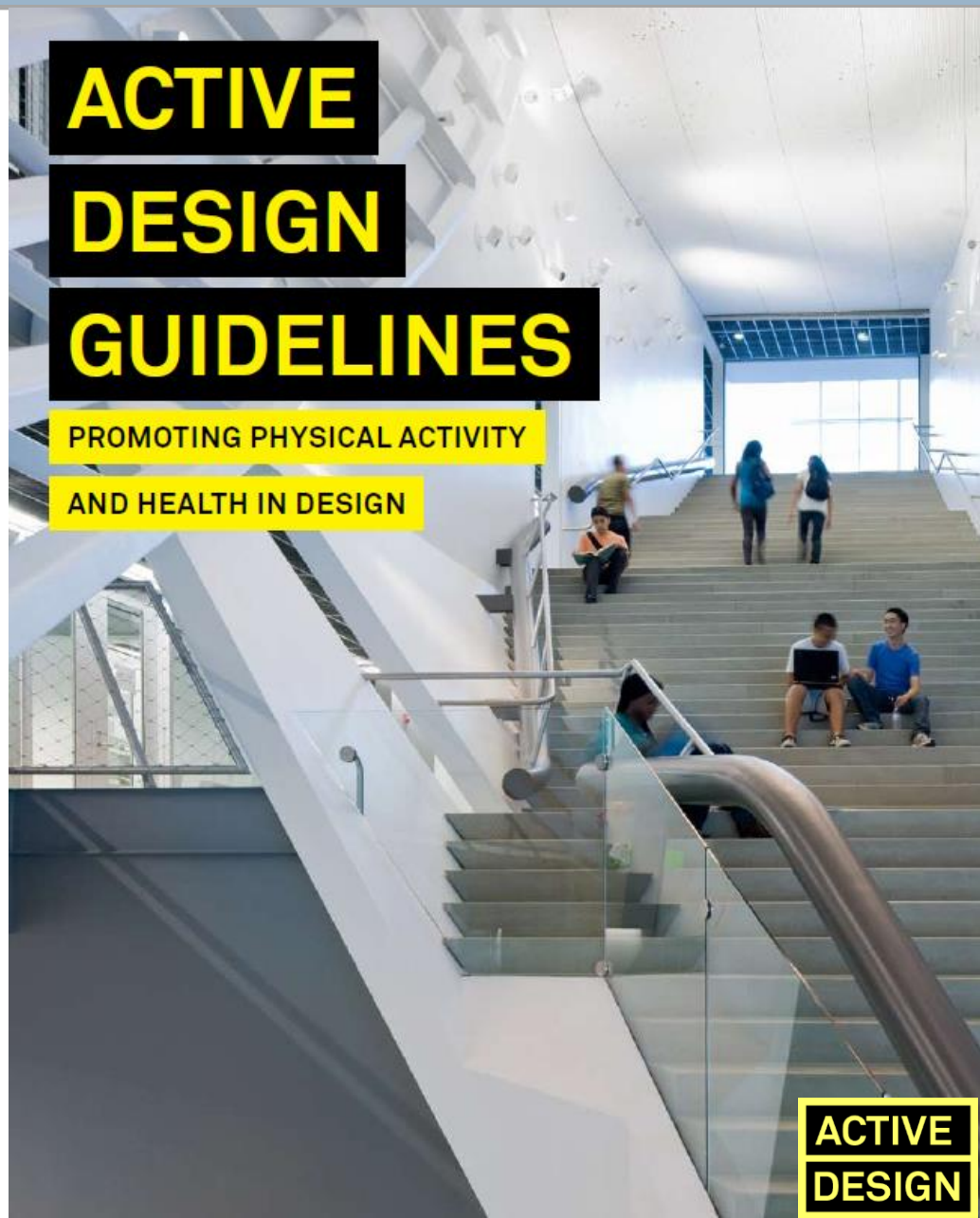


ACTIVE DESIGN

NYC Active Design Guidelines

Chapters

1) Environmental Design and Health: Past and Present
2) Urban Design: Creating an Active City
3) Building Design: Creating Opportunities for Daily Physical Activity
4) Synergies with Sustainable and Universal Design



Active Design Guidelines Team

Michael Bloomberg
MAYOR

David Burney
COMMISSIONER
Department of Design and Construction

Thomas Farley
COMMISSIONER
Department of Health and Mental Hygiene

Janette Sadik-Khan
COMMISSIONER
Department of Transportation

Amanda Burden
COMMISSIONER
Department of City Planning

New York City Staff*

Department of Design and Construction

David Burney, FAIA
Commissioner

Margo Woolley, AIA
Assistant Commissioner, Architecture and Engineering Division

Vitoria Milne, MID
Director, Office of Creative Services

Department of Health and Mental Hygiene

Karen Lee, MD, MHSc, FRCPC
Director, Built Environment

Sarah Wolf, MPH, RD
Built Environment Coordinator

Department of Transportation

Wendy Feuer, MA
Assistant Commissioner of Urban Design and Art, Division of Planning and Sustainability

Hanna Gustafsson
Former Urban Fellow, Division of Planning and Sustainability

Department of City Planning

Alexandros Washburn, AIA
Chief Urban Designer

Skye Duncan, MSAUD, BArch
Associate Urban Designer

Mayor's Office of Management and Budget

Joyce Lee, AIA, LEED AP
Chief Architect

Academic Partners

Craig Zimring PhD.
Professor, Georgia Institute of Technology
College of Architecture

Gayle Nicoll, M.Arch, PhD, OAA
Associate Professor and Chair, University of Texas at San Antonio
Department of Architecture

Julie Brand Zook, M.Arch
Researcher, Georgia Institute of Technology
College of Architecture

Reid Ewing, PhD
Professor, University of Utah, Department of
City and Metropolitan Planning

American Institute of Architects New York Chapter

Fredric Bell, FAIA
Executive Director

Sherida Paulsen, FAIA
2009 President

Editor

Irene Chang, March, MPhil
Cheng+Snyder

Community, Academic and Private Sector

Ernest Hutton, Hutton Associates, INC.
Ellen Martin, 1100 Architects
Linda Polack Marpillero Pollak, Architects
John Pucher, Bloustein School of Planning and Public Policy, Rutgers University
Jessica Spiegel, 1100 Architects
William Stein, Dattner Architects
Shin-Pei Tsay, Transportation Alternatives

Thanks to all the design practitioners and organizations who participated in the 2009 Design Charrette to help test the Guidelines prior to its publication.

*We also thank the many city agencies that gave input including the Depts of Parks and Recreation, Buildings, Housing Preservation and Development, School Construction Authority, Aging, and Mayor's Offices of Long-Term Planning and Sustainability, and of People with Disabilities.

ACTIVE DESIGN

Evidence-based & Best Practice-based strategies

Distinguishing Strength of the Evidence

Evidence-based

Design strategies supported by a pattern of evidence from at least 2 longitudinal or 5 cross-sectional studies.

Emerging Evidence

Design strategies supported by an emerging pattern of research. Existing studies give reason to believe that the suggested environmental intervention will likely lead to increased physical activity.

Best Practice-based

Design strategies without a formal evidence base. However, theory, common understanding of behavior within the environment, and experience from existing practice indicate that these measures will likely increase physical activity.

ACTIVE DESIGN

IMPLEMENTATION: Identifying and Highlighting Synergies and Co-Benefits

Synergies:

- Health
- Safety
- Environmental Sustainability
- Universal Accessibility
- Economic Benefits

ACTIVE DESIGN

Co-benefits of Active Design: Improve the Environment

	Fuel / Electricity Use	Air Quality	Obesity/Diabetes/ Heart Disease
Biking or walking rather than automotive transport	√	√	√
Stairs rather than elevators and escalators	√	√	√
Active recreation rather than television	√	√	√
Safe tap water rather than bottled and canned beverages	√	√	√
Fresh local produce rather than unhealthy processed foods	√	√	√

ACTIVE DESIGN

Co-benefits: Create more accessible places

- Creating safer places to walk, take transit, & for wheelchair travel

- Making elevators more available for those who need them

ACTIVE DESIGN

Co-benefits: Strengthen our economy

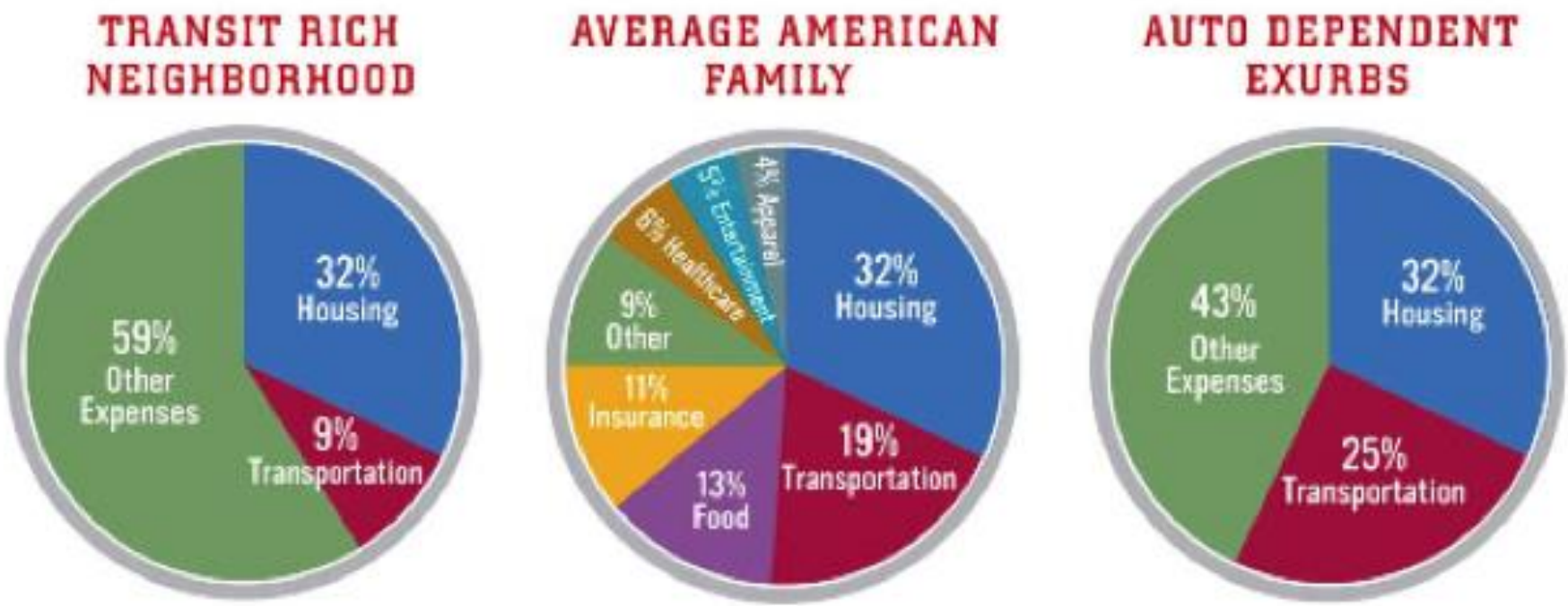
More compact, walkable development patterns save money on avoided infrastructure costs

	Water & Sewer Laterals Required	Water & Sewer Costs (billions)	Road Lane Miles Required	Road Land Miles Costs (billions)
Sprawl Growth Scenario	45,866,594	$189.8	2,044,179	$927.0
Compact Growth Scenario	41,245,294	$177.2	1,855,874	$817.3
Savings	**4,621,303**	**$12.6 (10.1%)**	**188,305**	**$109.7 (6.6%)**

Sprawl Costs: Economic Impacts of Unchecked Development, Robert W. Burchell, Anthony Downs, Barbara McCann and Sahan Mukherji, Island Press, 2005

ACTIVE DESIGN

Co-benefits: Save people money



People in walkable, transit-rich neighborhoods spend only 9 percent of their monthly income on transportation costs; those in auto-dependent neighborhoods spend 25 percent.

Source: Center for Transit-Oriented Development

ACTIVE DESIGN

Co-benefits: Create jobs

Project type	Road	Bicycle	Pedestrian	Off-street trail	Number of projects	Direct jobs per $1 million	Indirect jobs per $1 million	Induced jobs per $1 million	Total jobs per $1 million
Total, all projects					58	4.69	2.12	2.15	8.96
Bicycle infrastructure only		•			4	6.00	2.40	3.01	11.41
Off-street multi-use trails				•	9	5.09	2.21	2.27	9.57
On-street bicycle and pedestrian facilities (without road construction)		•	•		2	4.20	2.20	2.02	8.42
Pedestrian infrastructure only			•		10	5.18	2.33	2.40	9.91
Road infrastructure with bicycle and pedestrian facilities	•	•	•		13	4.32	2.21	2.00	8.53
Road infrastructure with pedestrian facilities	•		•		9	4.58	1.82	2.01	8.42
Road infrastructure only (no bike or pedestrian components)	•				11	4.06	1.86	1.83	7.75

Building bicycle and pedestrian infrastructure creates more jobs per dollar invested, compared to road infrastructure only

Source: Political Economy Research Institute: June 2011

ACTIVE DESIGN

Co-benefits: Create desirable places to live, work & play

Sprawl Community :

Preferred by 43%

There are **only single-family houses** on large lots

There are **no sidewalks**

Places such as shopping, restaurants, a library, and a school are within **a few miles** of your home and **you have to drive** most places

There is enough parking when you drive to local stores, restaurants, and other places

Public transportation, such as bus, subway, light rail, or commuter rail, is **distant or unavailable**

Smart Growth Community :

Preferred by 56%

There is a **mix** of single-family detached houses, townhouses, apartments, and condominiums on various sized lots

Almost all of the streets have **sidewalks**

Places such as shopping, restaurants, a library, and a school are within **a few blocks** of your home and **you can either walk or drive**

Parking is limited when you decide to drive to local stores, restaurants, and other places

Public transportation, such as bus, subway, light rail, or commuter rail, **is nearby**

Source: NAR National Poll, 2011 Q: In which community would you rather live?

ACTIVE DESIGN

IMPLEMENTATION: Integrating Health into Master Plans

Added a Public Health Chapter:

"New York City is one of the healthiest cities in the United States, with a life expectancy that exceeds the national average.

This achievement is the result of visionary planning and sustained investment……

…..Despite these successes, health challenges remain—and new ones are emerging—that require creative, modern shifts in how the city operates."

ACTIVE DESIGN

IMPLEMENTATION: Using Existing BE Processes - Eg. LEED Green Building & Development Rating Systems

Development **density** and community **connectivity**

Public transportation access

Bicycle storage and changing rooms

Creation of LEED Pilot Credit "Design for Active Occupants"
(Adult and children's active recreation spaces, Gardening space, Stair use promotion strategies)

Developed through a public-private partnership; used Health Dept Clinic as 1st building

Now approved for multiple NYC and US Buildings, incl. office buildings, college campuses, affordable housing

ACTIVE DESIGN

IMPLEMENTATION: Integrating Health Items into City Administrative Processes Across Sectors

- Public Sector Design & Construction RFPs and Contracts

- Guidelines and Standards for Foods & Beverages served by City Agencies, and for Design and Construction in Different Agencies – Public Buildings, Streets, Schools, Housing

- Training of City staff in all relevant agencies

- >3000 U.S. architects, planners and other built environment professionals trained (>2000 in NYC)

- Training sessions shown to be **effective**
  >70% had not read the Active Design Guidelines before
  >85% say they **plan to use strategies** in Guidelines
  >80% say their **employers will be receptive** and **clients will be receptive** to incorporating strategies

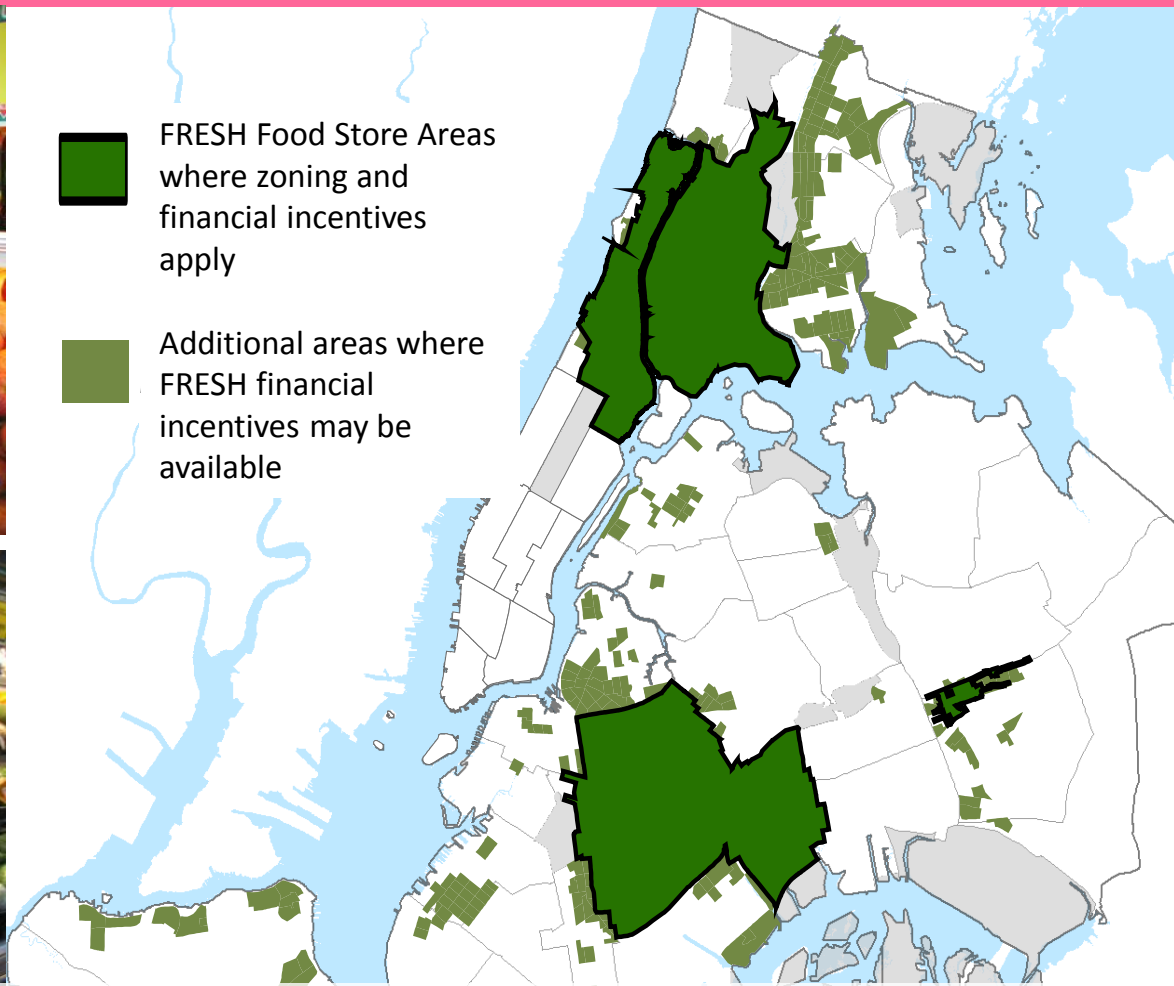
ACTIVE DESIGN

IMPLEMENTATION: Integrating Health into Non-Health Legislative Processes - NYC Green Codes

Increasing drinking water access through better tap water facilities – passed in Plumbing Code

ACTIVE DESIGN

IMPLEMENTATION: Creating Incentives - NYC FRESH Program



Zoning and tax incentives for providing **fresh food** options in the city's underserved areas with high health needs

www.nyc.gov/fresh

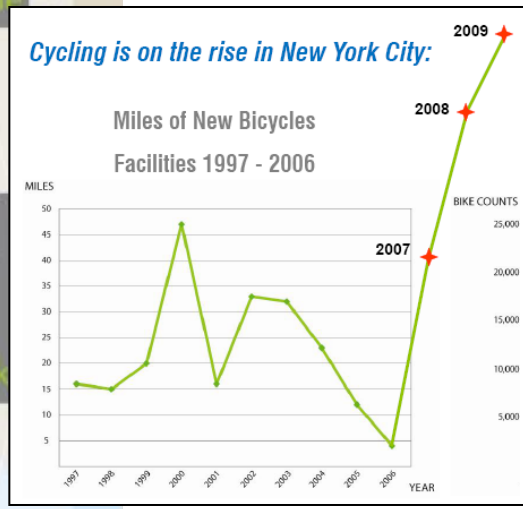
ACTIVE DESIGN

IMPLEMENTATION: Mandating

- Trans Fat Ban in Restaurants
- Calorie Posting in Chain Restaurants
- Daycares – food and beverages served; physical activity time; limited screen time

ACTIVE DESIGN

IMPLEMENTATION: Mandating + Relieving Burdens - Zoning for Bicycle Parking



Zoning for Bicycle Parking:

Increasing active transport by providing safe and secure parking for bike commuters

ACTIVE DESIGN

IMPLEMENTATION: Changing the Public Realm – Pedestrian Plazas, Bicycle Lanes, Bus Rapid Transit

Pedestrian volumes up:

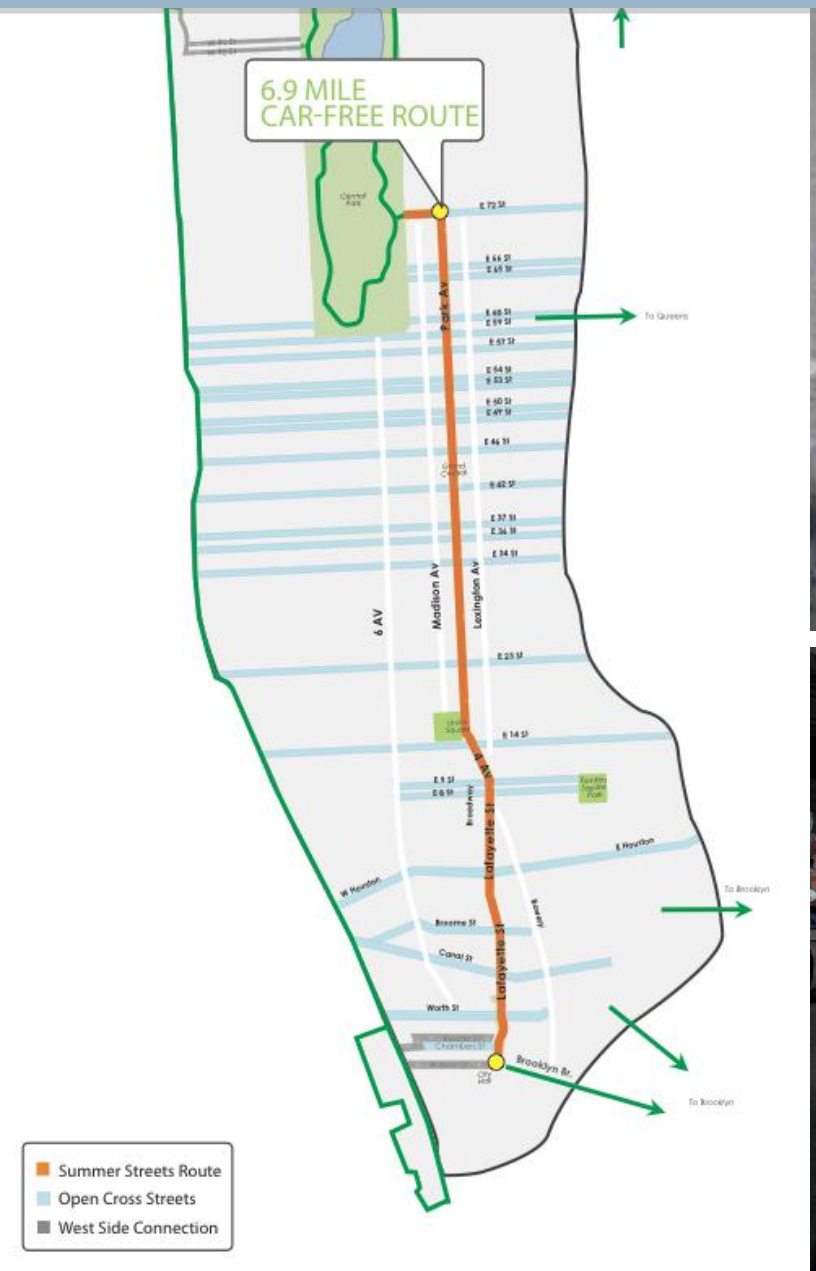
- 6% in Herald Square
- 11% in Times Square

Retail up:

- in Times Square
- 49% drop in vacant storefronts in Union Square

ACTIVE DESIGN

IMPLEMENTATION: Programming Streets for Recreation and Non-Car Mode Uses - Summer Streets and Play Streets



Opportunities?
4 Major Plans:

DESIGN REGINA
SHARE YOUR THOUGHTS. SHAPE OUR CITY.
OFFICIAL COMMUNITY PLAN

1) Official Community Plan

- Sets long term direction for the City
- Manages future growth and development

2) Transportation Master Plan

- Comprehensive, multi-modal transportation policy and planning document that will shape Regina's transportation system for the next 25 years.
- Includes discussion on the construction, operations and maintenance of active transportation infrastructure.

ACTIVE DESIGN

DESIGN REGINA
SHARE YOUR THOUGHTS. SHAPE OUR CITY.
OFFICIAL COMMUNITY PLAN

3) Comprehensive Housing Strategy

– Align programs and assets with current and future housing needs, coordinate new policies and programs of the Province, and determine where the best areas are to stimulate and regulate the housing market.

4) Cultural Plan

– Establish a guiding vision and long-term strategy to enrich the cultural life of neighbourhoods, generate policies and recommendations and define ways cultural assets can advance economic and broader development priorities

ACTIVE DESIGN

Further Info

Contact Info:

Dr. Karen K. Lee, MD, MHSc

kkhlee2000@hotmail.com

Relevant Links:

http://www.nyc.gov/html/dcp/html/sidewalk_experience/index.shtml

www.nyc.gov/fresh

http://activelivingresearch.org/active-design-supplement-affordable-designs-affordable-housing

www.aiany.org/fitcity7

www.thecommunityguide.org/pa/environmental-policy

ACTIVE DESIGN